

MANUFACTURERS' RECORD

A WEEKLY SOUTHERN INDUSTRIAL
RAILROAD AND FINANCIAL NEWSPAPER.

SIGNS OF THE TIMES.

Certainly, no careful observer, either in New England or the country at large, can be blind to the fact that a crucial period is at hand for the New England cotton-spinning industries. In the keen and incessant fight for manufacturing supremacy the factory which can draw from its immediate environs the supplies of raw material needful for its daily consumption is the one which is best equipped to survive the struggle. This is precisely the situation in the Southern States today, as compared with New England. The latter hauls her coal for hundreds of miles, likewise the raw cotton out of which her fabrics are woven. The South, on the other hand, finds its factories surrounded with the cotton-fields, and it is but a stone's throw from the coal mines to the furnaces of those factories. Granting these two facts alone, the odds are heavily against New England. But when, in addition, cheaper labor confronts her manufacturers than is possible in the rigorous and changing climate of what are, after all, comparatively sterile States, as contrasted with the productive fields of the South, what shall be said of the outlook? It would seem inevitable that for the lower and medium grades of cotton goods, if not, indeed, for the more expensive as well, the bulk of production must sooner or later swing from New England south of Mason and Dixon's line.—Dry Goods Chronicle.

THE FULL TABLE OF CONTENTS WILL BE FOUND ON PAGE 165.

\$4.00 per year.
Single Copy
10 Cents.

Baltimore, March 25, 1898.

The Westinghouse Air-Brake Company

is now prepared to fill orders at an hour's notice for one or one thousand sets of **Air-Brakes for Freight Cars**, having at their new works an annual capacity for turning out air-brakes for

250,000 Freight Cars
6,000 Passenger Cars
10,000 Locomotives

Besides repairs for the **613,000 Freight and Passenger Cars** and **31,500 Locomotives** already equipped by

The Westinghouse Air-Brake Company



MANUFACTURERS

Wire Brushes, Bristle Brushes, Iron, Brass and Steel Riddles, Bellows, Sifting Machines, Chaplets, tinned and plain, Moulder's Cast Steel Shovels, Geared and Hand Ladies in Stock.

ASK FOR
ANY
SUPPLIES
YOU
WANT.



(A FEW BRANDS OF FACING.)



Finest Stove-Plate Facings.

FIRE-PROOF and RETURN FACING.

CHARCOAL, SOAPSTONE, ANTHRACITE, PLUMBAGO, SEACOAL and MACHINE.

J. W. PAXSON CO.

1021 N. Delaware Avenue,

PHILADELPHIA, PA.

THE MARION STEAM SHOVEL CO.



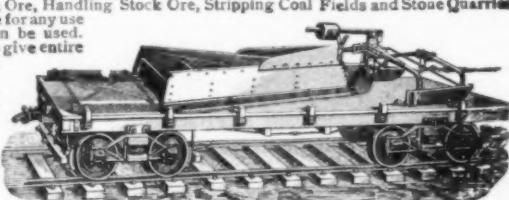
Barnhart's Steam Shovels, Dredges, Ditching Dredges, Railroad Ditchers, Wreckers, Ballast Unloaders, etc. Our Steam Shovels are largely used on Railroads and by Contractors, Brick Manufacturers, and in excavating Iron Ore, Handling Stock Ore, Stripping Coal Fields and Stone Quarries, and are a most desirable machine for any use where excavating machinery can be used. All of our machinery is guaranteed to give entire satisfaction; otherwise may be returned at our expense.

For illustrated Catalogue, Photographs, and any other information desired, address the

Marion Steam Shovel Co.

601 West Centre Street,

MARION, OHIO.



Barnhart's Ballast Unloader; no center rib or leader is required.

LAWRENCE

HIGHEST GRADE.
RAILWAY
PAINTS

W. W. LAWRENCE & CO.
 PITTSBURG and BUFFALO.
 CORRESPONDENCE INVITED.

10,000 XX-6 $\frac{1}{4}$ size, good quality white envelopes printed for \$10. Freight paid when money accompanies the order. Samples on application. ATLANTA ENVELOPE CO., Atlanta, Ga.

PERFORATED SHEET METALS
 For All Manufacturing Purposes.

MUNDT & SONS,
 88 and 90 Walker Street,
 NEW YORK.

CLASSIFIED INDEX OF ADVERTISERS.

For ALPHABETICAL INDEX See Page 164.

Acid Chambers.

James Robertson Mfg. Co., Baltimore, Md.
Caroline Iron Works, Baltimore, Md.
Valk & Murdoch Iron Wks., Charleston, S. C.

Agricultural Implements.

Hench & Dromgold, York, Pa.

Air Brakes.

Westinghouse Air Brake Co., Pittsburg, Pa.

Air Compressors.

Clayton Air Compressor Works, New York.
Stilwell-Biers & Smith-Valle Co., Dayton, O.
Hall Steam Pump Co., Pittsburg, Pa.

H. B. Smith Machine Co., Smithville, N. J.
E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.

Ingersoll-Sergeant Drill Co., New York, N. Y.
Rand Drill Co., New York, N. Y.

Sullivan Machinery Co., Chicago, Ill.

Anti-Friction Metals.

F. E. Reed Co., Worcester, Mass.
Epping-Carpenter Co., Pittsburg, Pa.

Theo. Hertz & Son, St. Louis, Mo.

More, Jones & Co., St. Louis, Mo.

Bailey-Lebby Co., Charleston, S. C.

Antimony.

Theo. Hertz & Son, St. Louis, Mo.

Architects.

Chas. A. M. Pray & Co., Providence, R. I.
Towers & Wallace, Holyoke, Mass.
John McDonald & Sons, Austin, Texas.

Frank P. Milburn, Charlotte, N. C.
Hales & Ballinger, Philadelphia, Pa.

James Stewart & Co., St. Louis, Mo.

C. R. Makepeace & Co., Providence, R. I.

Architectural Iron Work.

Norris, Burnham & Co., Inc., Glen Rock, Pa.

Lombard Iron Wks. & Sup. Co., Augusta, Ga.

T. H. Brooks & Co., Cleveland, O.

Artesian Well Tools and Supplies.

[See Well Tools and Supplies.]

Asbestos.

H. W. Johns Manufacturing Co., New York.

Empire Paint & Roof. Co., Philadelphia, Pa.

Asphalt Pavements.

Warren Chem. & Mfg. Co., New York, N. Y.

National Roofing & Sup. Co., Louisville, Ky.

Barber Asphalt Paving Co., New York, N. Y.

Attorney and Counsellor-at-Law.

Interstate Law Asso., Charleston, W. Va.

J. A. Thayer & Co., Charleston, W. Va.

Rob. W. Grasty, Atlanta, Ga.

Babbitt Metal. [See Anti-Friction Metal.]**Bags, Rope and Twine.**

Royal Bag Mfg. Co., Charleston, S. C.

G. L. Stuehner Iron Wks., L. Island City, N. Y.

Bridges.

The New Columbus Bridge Co., Columbus, O.

Alabama Bridge & Bolt Co., Birmingham, Ala.

Buckets. [Self-dumping Coal and Ore.]

R. D. Seidel, Reading, Pa.

G. L. Stuehner Iron Wks., L. Island City, N. Y.

Burlaps.

Royal Bag Mfg. Co., Charleston, S. C.

John T. Bailey & Co., Philadelphia, Pa.

Canmakers' Machinery.

Niagara Machine & Tool Wks., Buffalo, N. Y.

Toledo Machine & Tool Co., Toledo, O.

Maryland Mfg. & Const. Co., Baltimore, Md.

E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.

Canning Machinery.

Niagara Machine & Tool Wks., Buffalo, N. Y.

A. K. Robins & Co., Baltimore, Md.

E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.

Capitans. (Hand and Steam.)

American Ship Windlass Co., Providence, R. I.

Carbon Black Diamonds. [For Diamond Drills.]

The S. Dessau Co., New York, N. Y.

Card Clothing.

American Supply Co., Providence, R. I.

Cars. (Mine and Dump.)

Jackson Manufacturing Co., Harrisburg, Pa.

G. L. Stuehner Iron Wks., L. Island City, N. Y.

Climax Mfg. Co., Corry, Pa.

Birmingham Boiler Wks., Birmingham, Ala.

Geo. Peacock, Selma, Ala.

Cars. (Passenger and Freight.) [See Railroad Equipment and Supplies.]**Car-Couplers.**

Chester Steel Castings Co., Philadelphia, Pa.

Car Seals. (Lead.)

Theo. Hertz & Son, St. Louis, Mo.

Car Springs.

N. J. Car Spring & Rub. Co., Jersey City, N. J.

Boston Belting Co., Boston, Mass.

Car Wheels and Axles.

Lobdell Car Wheel Co., Wilmington, Del.

Geo. Peacock, Selma, Ala.

Castings. (Brass and Bronze.)

Epping-Carpenter Co., Pittsburg, Pa.

The Lunkenheimer Co., Cincinnati, O.

Newburgh Ice Machine & Engine Co., Newburgh, N. Y.

Castings. (Copper.)

Mitchell Tempered Copper Co., Corry, Pa.

Castings. (Crucible Chrome Steel.)

Chrome Steel Works, Brooklyn, N. Y.

Castings. (Iron.)

High Point Mfg. Works, High Point, N. C.

The Vulcan Works, Chester, Pa.

The New Columbus Bridge Co., Columbus, O.

R. D. Wood & Co., Philadelphia, Pa.

Newburgh Ice Machine & Engine Co., Newburgh, N. Y.

Chattanooga Fdy. & P. Wks., Chatt., Tenn.

Melanahan & Stone, Hollidaysburg, Pa.

Castings. (Malleable Iron and Steel.)

Chester Steel Castings Co., Chester, Pa.

Ceilings.

Cincinnati Corrugating Co., Piqua, O.

Cement.

Maryland Cement Co., Baltimore, Md.

Austin White Lime Co., Austin, Texas.

Southeastern Lime & Co., Charleston, S. C.

Wm. M. Bird & Co., Charleston, S. C.

Commercial Wood & Cement Co., Phila., Pa.

C. M. Gilbert & Co., Savannah, Ga.

Chains.

The Jeffrey Mfg. Co., Columbus, O.

Chemists.

Otto Meyer, Richmond, Va.

Lucius P. Brown, Nashville, Tenn.

R. Dunbar & Son, Buffalo, N. Y.

N. P. Pratt Laboratory, Atlanta, Ga.

Dr. Henry Froehling, Richmond, Va.

John Sanderson, Middleborough, Ky.

Chucks.

Morse Twist Drill & Mch. Co., New Bedford, Mass.

Skinner Chuck Co., New Britain, Conn.

Chas. H. Besly & Co., Chicago, Ill.

Boiler Fronts and Fittings. [See Boilers.]**Boilers. (See Machinery.)**

Muirhead Machine Works, Pittston, Pa.

The Murray Iron Works Co., Burlington, Ia.

Ames Iron Works, Oswego, N. Y.

Harrisburg Mfg. & Boiler Co., Harrisburg, Pa.

Standard Saw Mill Machy. Co., Erie, Pa.

S. L. Holt & Co., Boston, Mass.

The Means & Fulton Iron Works, Birmingham, Ala.

The Globe Machine Works, Cincinnati, O.

Maryland Mfg. & Const. Co., Baltimore, Md.

York Mfg. Co., York, Pa.

Bitter-Conley Co., Pittsburg, Pa.

MANUFACTURERS' RECORD.

For ALPHABETICAL INDEX See Page 164.

3

Clamps.

Chas. H. Besly & Co., Chicago, Ill.

Clocks. (Watchman's and Town.)

Fairmount Mch. Co., Philadelphia, Pa.

Eco Magneto Clock Co., Boston, Mass.

Chas. H. Besly & Co., Chicago, Ill.

Clutches. (Friction.)

Christiania Machine Co., Christiania, Pa.

E. W. Bliss Co., 137 Plymouth street, Brook-

lyn, N. Y.

Com.

Davis Coal & Coke Co., Philadelphia, Pa.

The Standard Coal Co., Brookwood, Ala.

Castner, Curran & Bullitt, Philadelphia, Pa.

Cocks. (Ball and Plugged.)

Lehigh Valley Brass Wks., S. Bethlehem, Pa.

Coke.

Davis Coal & Coke Co., Philadelphia, Pa.

The Standard Coal Co., Brookwood, Ala.

Commutator Bars and Segments.

F. E. Homer & Co., Cleveland, O.

Mitchell Tempered Copper Co., Corry, Pa.

Contractors. (Railway.)

G. W. Chance, Philadelphia, Pa.

Smethurst & Allen, Philadelphia, Pa.

Contractors and Builders.

C. H. Norton, Durham, N. C.

Gulfoux & Blanc, New Iberia, La.

John McDonald & Sons, Austin, Texas.

Wm. A. Chapman & Co., Providence, R. I.

James Stewart & Co., St. Louis, Mo.

Contractors and Builders' Supplies.

Guilfoux & Blanc, New Iberia, La.

Riter-Conley Co., Pittsburg, Pa.

Contractors. (Prospecting.)

H. P. Simpson, Scranton, Pa.

Muirhead Machine Works, Pittston, Pa.

American Diamond Rock Drill Co., New

York, N. Y.

Sullivan Machinery Co., Chicago, Ill.

Drills. (Rock.)

American Diamond Rock Drill Co., New York.

Sullivan Machinery Co., Chicago, Ill.

Drills. (Twist.)

Standard Tool Co., Cleveland, O.

Morse Twist Drill & Mch. Co., New Bedford,

Mass.

Drilling Machines.

The Davis & Egan Mch. Tool Co., Cincinnati, O.

H. P. Simpson, Scranton, Pa.

Mulrhead Machine Works, Pittston, Pa.

The American Diamond Rock Drill Co., New

York, N. Y.

Dry-Kilns.

New Rapid Dry-Kiln Co., Baltimore, Md.

The A. H. Andrews Co., Chicago, Ill.

Sturtevant Mill Co., Boston, Mass.

Drying Machinery.

J. R. Aising Co., New York, N. Y.

W. F. Sturtevant Co., Boston, Mass.

Dyestuffs and Chemicals.

A. Klipstein & Co., New York.

Ejectors.

Henry P. Hancock & Co., Philadelphia, Pa.

Electric Power.

Columbia Water Power Co., Columbia, S. C.

An Extra Engineer

not needed to look after the "Heintz" Steam Trap. It's automatic, sensitive, lasts for years. Operates by expansion of sealed tube, which closes the valve as live steam enters the trap — 212° : valve open at 211° . Smallest size discharges a gallon of water a minute.

Guaranteed to give best results and save coal and steam. Our Booklet "J" interesting to users. Ask for it.

William S. Haines
Company,
136 South Fourth Street,
Philadelphia.



"The Heintz—the best—the' it has imitators."

WIRE ROPE

FOR ALL PURPOSES:

Wire Rope Tramways; Iron and Steel Wire
OF ALL KINDS.

TRENTON IRON CO., TRENTON, N.J.

New York Office, COOPER, HEWITT & CO., 17 Burling Slip.
Chicago Office, 1114 Monadnock Building.

Established

1848.

IRON, STEEL AND GALVANIZED



Write us. For Shafts, Quarries, Elevators, Ferries, &c.
THE HAZARD MFG. CO., General Office and Works, WILKESBARRE, PA.
New York Office and Warehouse, 87 Liberty St.

THE HARRINGTON & KING PERFORATING CO.
HARRINGTON & KING PERFORATING CO.
CHICAGO.

METALS PERFORATED AS REQUIRED FOR

SCREENS OF ALL KINDS

AND FOR USE IN

Milling and Mining Machinery
Reduction and Concentrating Works
Woolen, Cotton, Paper and Pulp Mills
Rice, Flour and Cottonseed Oil Mills
Sugar and Malt Houses
Distilleries, Filter Presses

Stone, Coal and Ore Screens
Stamp Battery Screens
Brick and Tile Works, Filters
Spark Arresters, Gas and Water Works
Oil, Gas and Vapor Stoves
Coffee Machinery, etc., etc.

Standard Sizes Perforated Tin and Brass Always in Stock.

Main Office and Works: 234 to 236 North Union Street, Chicago, Ill., U.S.A.
Eastern Office: No. 284 Pearl Street, New York



Our SAND PAPERS are famous.

Superior Quality has made them so.



FLINT,
GARNET,
EMERY,
EMERY CLOTH,
SAND PAPERS that have stood
the test of twenty-five
years' service.

... YOU RUN NO RISK.

GLUE, CURLED HAIR and SAND PAPER.

BAEDER, ADAMSON & CO.

CRUCIBLES, Stoppers and Nozzles,
R. D. SEIDEL,
1324-1334 Callehill St Philadelphia, Pa.

730 Market Street, Philadelphia.
67 Beekman Street, New York.
143 Milk Street, Boston.
182 Lake Street, Chicago.

Conveying, Elevating and Power-Transmitting Machinery

H. W. CALDWELL & SON CO.

GENERAL MACHINISTS,

127, 129, 131, 133 West Washington St.

CHICAGO.



CALDWELL

STEEL CONVEYOR.

Manufactured exclusively by us at Chicago, with latest improvements.



LINK BELTING.
SPROCKET WHEELS.
COTTON BELTING.
RUBBER BELTING.
LEATHER BELTING.
BELT CLAMPS.
POWER GRAIN SHOVELS.
ELEVATOR BOLTS.
ELEVATOR BUCKETS.
CONCRETE MIXERS.

FRICITION CLUTCHES.
JAW CLUTCHES.
COUPLINGS.
FLEXIBLE SPOUTS.
GEARING (all kinds).
GRAIN SCOOPS.
ELEVATOR BOOTS.
COGSWELL MILLS.
HANGERS.
PERFORATED METALS.

PILLOW BLOCKS.
IRON PULLEYS.
WOOD PULLEYS.
SHAFTING.
SET COLLARS.
SWIVEL SPOUTS.
TAKE-UP BOXES.
TURN HEAD SPOUTS.
WIRE CLOTH.



CLASSIFIED INDEX OF ADVERTISERS.

For ALPHABETICAL INDEX See Page 164.

The Vulcan Works, Chester, Pa.
Ames Iron Works, Oswego, N. Y.
Frontier Iron Works, Detroit, Mich.
Standard Saw Mill Machy. Co., Erie, Pa.
S. L. Holt & Co., Boston, Mass.
Wallace Stebbins, Baltimore, Md.
B. F. Sturtevant Co., Boston, Mass.
The Globe Machine Works, Cincinnati, O.
Maryland Mfg. & Const. Co., Baltimore, Md.
York Mfg. Co., York, Pa.
Buckeye Engine Co., Salem, O.
A. B. Farquhar Co. Ltd., York, Pa.
Robt. Wetherill & Co., Chester, Pa.
American-Ball Eng. Co., Bound Brook, N. J.
Buffalo Forge Co., Buffalo, N. Y.
Westinghouse Machine Co., Pittsburgh, Pa.
The Ball Engine Co., Erie, Pa.
Newport News Shipbuilding & Dry Dock Co., Newport News, Va.
Struthers, Wells & Co., Warren, Pa.
W. D. Forbes & Co., Hoboken, N. J.
Newburgh Ice Machine & Engine Co., Newburgh, N. Y.
James Leffel & Co., Springfield, O.
Smith-Courtney Co., Richmond, Va.
Lidgerwood Mfg. Co., New York, N. Y.
Union Iron Works Co., Selma, Ala.
The Bailey-Lebby Co., Charleston, S. C.
Charlotte Machine Co., Charlotte, N. C.
Mecklenburg Iron Works, Charlotte, N. C.
Remington Machine Co., Wilmington, Del.
Cameron & Barkley Co., Charleston, S. C.
S. C. Forsyth Mch. Co., Manchester, N. H.
Frick Co., Waynesboro, Pa.
Valk & Murdoch Iron Wks., Charleston, S. C.

Engines. (Gas and Gasoline.)
Frontier Iron Works, Detroit, Mich.
Columbus Machine Co., Columbus, O.
J. Thompson & Sons' Mfg. Co., Beloit, Wis.
Springfield Gas Engine Co., Springfield, O.
J. W. Rager & Co., Buffalo, N. Y.
The Foss Gas Engine Co., Springfield, O.
Otto Gas Engine Works, Philadelphia, Pa.

Engines. (Oil.)
Priestman & Co., Inc., Philadelphia, Pa.

Engravers.
Brown-Bierce Co., Dayton, O.
Baltimore Engraving Co., Baltimore, Md.

Envelopes.
Atlanta Envelope Co., Atlanta, Ga.

Fans. (Electric Ceiling.)
Robbins & Meyers Co., Springfield, O.

Fans. (Ventilating.)
B. F. Sturtevant Co., Boston, Mass.
Buffalo Forge Co., Buffalo, N. Y.

Feed Water Heaters.
Frontier Iron Works, Detroit, Mich.
S. L. Holt & Co., Boston, Mass.
Pittsburgh Feed-Water Heater & Engineering Co., Pittsburgh, Pa.
Warren Webster & Co., Camden, N. J.
Jas. Berryman, Philadelphia, Pa.
National Pipe Bend. Co., New Haven, Conn.
Stillwell-Bierce & Smith-Valle Co., Dayton, O.

Feltting. (Hair.)
Baeder, Adamson & Co., Philadelphia, Pa.

Fencing.
Ellis & Helfenberger, Indianapolis, Ind.
Dow Wire Works Co., Louisville, Ky.
Dufur & Co., Baltimore, Md.
Ludlow-Saylor Wire Co., St. Louis, Mo.

Fertiliser Machinery.
J. R. Alsing Co., New York, N. Y.
C. H. Dempwolf & Co., York, Pa.
Foss Mfg. Co., Springfield, O.
Bradley Pulverizer Co., Boston, Mass.
Sturtevant Mill Co., Boston, Mass.
The Bailey-Lebby Co., Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.
Valk & Murdoch Iron Wks., Charleston, S. C.
Walker & Elliott, Wilmington, Del.

Filles.
G. & H. Barnett Co., Philadelphia, Pa.
Chas. H. Besly & Co., Chicago, Ill.
Nicholson File Co., Providence, R. I.

Fire Brick.
Pomona Terra Cotta Co., Pomona, N. C.
H. Stevens' Sons Co., Macon, Ga.
Powhatan Clay Mfg. Co., Richmond, Va.

Fire Extinguishers.
L. B. Brickenstein, Salem, N. C.
The Bailey-Lebby Co., Charleston, S. C.
General Fire Exting. Co., Providence, R. I.
Charlotte Machine Co., Charlotte, N. C.

Flour and Grist Mill Machinery and Supplies.
J. R. Alsing Co., New York, N. Y.
Norris, Burnham & Co., Inc., Glen Rock, Pa.
Nordyke & Marmon Co., Indianapolis, Ind.
Munson Bros., Utica, N. Y.
Sprout, Waldron & Co., Muncy, Pa.
B. F. Starr & Co., Baltimore, Md.
Sturtevant Mill Co., Boston, Mass.
W. J. Clark Co., Salem, O.
Union Iron Works, Selma, Ala.
Wolf Co., Chambersburg, Pa.
H. W. Caldwell & Son Co., Chicago, Ill.

Flue Cleaners.
Thompson & Bushnell, New York, N. Y.
J. W. Paxson Co., Philadelphia, Pa.
Buffalo Forge Co., Buffalo, N. Y.
Vladut Brass Works, Cleveland, O.

Forges.
R. F. Sturtevant Co., Boston, Mass.

Forgings.
J. H. Williams & Co., Brooklyn, N. Y.

Forgings. (Steel.)
Jenny & Steinmetz, Philadelphia, Pa.
Keystone Drop Forge Co., Philadelphia, Pa.

Foundry Equipments and Supplies.
J. W. Paxson & Co., Philadelphia, Pa.

Fuel Economizer.
Broomell, Schmidt & Co., Ltd., York, Pa.
The Fuel Economizer Co., Matteawan, N. Y.

Fuel Gas Producers.
R. D. Wood & Co., Philadelphia, Pa.

Furnace Builders.
Edw. E. Erikson, Pittsburgh, Pa.
Miller Bros. & Co., Pittsburgh, Pa.
Alabama Bridge & Boil. Co., Birmingham, Ala.

Gages (Recording) and Counters.
Crosby St. Gage & Valve Co., Boston, Mass.

Gas and Steam Fitters' Tools.
Henry B. Pancon & Co., Philadelphia, Pa.
D. Saunders' Sons, Yonkers, N. Y.

Gearing.
Christiana Machine Co., Christiana, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
The Jeffrey Mfg. Co., Columbus, O.
Morse, Williams & Co., Philadelphia, Pa.
Chester Steel Castings Co., Phila., Pa.

Glass. (Art, Stained.)
L. Grosse Art Glass Works, Pittsburgh, Pa.

Glass. (Plate.)
Pittsburgh Plate Glass Co., Pittsburgh, Pa.

Glass. (Floor and Skylight.)
Pittsburgh Plate Glass Co., Pittsburgh, Pa.

Grates and Grate Bars.
Frontier Iron Works, Detroit, Mich.

The Globe Machine Works, Cincinnati, O.
Hartley's Boiler Works, Montgomery, Ala.
McClave, Brooks & Co., Scranton, Pa.

Gran Elevator Supplies.
W. J. Clark Co., Salem, O.
H. W. Caldwell & Son Co., Chicago, Ill.
Jeffrey Mfg. Co., Columbus, O.
Link-Belt Eng'g Co., Nicetown (Phila.), Pa.

Graphite.
Graphite Lubricating Co., Bound Brook, N. J.
Standard Oil Co., New York, N. Y.
Holmes Fibre Graphite Mfg. Co., Phila., Pa.
Jos. Dixon Crucible Co., Jersey City, N. J.

Grater. (Household.)
West Manufacturing Co., Buffalo, N. Y.

Grease Cups.
Lunkenheimer Co., Cincinnati, O.

Grinding and Polishing Mch.
Hanson & Van Winkle Co., Newark, N. J.
Hammacher, Schlemmer & Co., New York.
The Tanite Co., Stroudsburg, Pa.

Scranton Corundum & Emery Wheel Works, Scranton, Pa.

C. N. Cady, Canastota, N. Y.

Vitrified Wheel Co., Westfield, Mass.

Sterling Emery Wheel Co., Tiffin, O.

Norton Emery Wheel Co., Worcester, Mass.

Groovers.
Huthier Bros., Rochester, N. Y.

Gymnasium and Athletic Supplies.
A. J. Alford Sporting Goods Co., Balt., Md.

Hammers. (Steam and Power.)
Toledo Machine & Tool Co., Toledo, O.

The E. S. Stiles Press Co., Watertn, N. Y.

E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.

J. M. Robinson & Co., Cincinnati, O.

Handle Mch. (See Woodwork'g Mch.)
J. A. Fuy & Co., The Egan Co., Cincinnati, O.
Ober Lath Co., Chagrin Falls, O.

S. C. Forsyth Mch. Co., Manchester, N. H.
Trevor Mfg. Co., Lockport, N. Y.

Hardware Machinery.
E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.

Hardware Specialties.
Chas. H. Besly & Co., Chicago, Ill.

Standard Tool Co., Cleveland, O.

Wrightsville Hardware Co., Wrightsville, Pa.

W. J. Clark Co., Salem, O.

Cronk Hanger Co., Elmira, N. Y.

Coverd Mfg. Co., West Troy, N. Y.

Hardwoods.
A. I. Lyon & Co., Baltimore, Md.

Price & Headl., Baltimore, Md.

E. D. Albro Co., Cincinnati, O.

Heating Apparatus.
L. B. Brickenstein, Salem, N. C.

Warren Webster & Co., Linden, N. J.

Broomell, Schmidt & Co., Ltd., York, Pa.

The Peck-Hammond Co., Cincinnati, O.

T. H. Brooks & Co., Cleveland, O.

Hoisting Machinery.
The Case Manufacturing Co., Columbus, O.

The Murray Iron Works Co., Burlington, Ia.

Joseph F. McCoy Co., New York, N. Y.

The Jeffrey Mfg. Co., Columbus, O.

Lambert Hoisting Eng. Co., Newark, N. J.

Contractors' Plant Mfg. Co., Buffalo, N. Y.

Brown Hoist & Con. Mch. Co., Cleveland, O.

Lidgerwood Mfg. Co., New York, N. Y.

John F. Byers Machine Co., Ravenna, O.

Sullivan Machinery Co., Chicago, Ill.

Hose.
The Bradford Belting Co., Cincinnati, O.

Eureka Fire Hose Co., New York, N. Y.

N. J. Car Spring & Rub. Co., Jersey City, N. J.

Boston Belting Co., Boston, Mass.

Rossendale-Reddaway Belting & Hose Co., Newark, N. J.

Hose. (Cotton.)
Eureka Fire Hose Co., New York, N. Y.

N. J. Car Spring & Rub. Co., Jersey City, N. J.

Boston Belting Co., Boston, Mass.

Hose Reel.
The Hartzel Novelty Works, Alliance, O.

Hotels.
New Atlantic Hotel, Norfolk, Va.

Hunting and Sporting Supplies.
A. J. Alford Sporting Goods Co., Balt., Md.

Hydrants.
Chapman Valve Mfg. Co., Indian Orchard, Mass.

Ludlow Valve Mfg. Co., Troy, N. Y.

R. D. Wood & Co., Philadelphia, Pa.

Ice-Making Machinery.
The Vulcan Works, Chester, Pa.

The Murray Iron Works Co., Burlington, Ia.

John Featherstone's Sons, Chicago, Ill.

York Mfg. Co., York, Pa.

The Fred. W. Wolf Co., Chicago, Ill.

Lombard Iron Wks. & Sup. Co., Augusta, Ga.

Stillwell-Bierce & Smith-Valle Co., Dayton, O.

Newburgh Ice Machine & Engine Co., Newburgh, N. Y.

Remington Machine Co., Wilmington, Del.

Frick Co., Waynesboro, Pa.

Ice & Refrigerating Mch. Supplies.
The Klechler Mfg. Co., Cincinnati, O.

The Fred. W. Wolf Co., Chicago, Ill.

Injectors.
The Lunkenheimer Co., Cincinnati, O.

Jenkins Bros., New York, N. Y.

Pemberly Injector Co., Detroit, Mich.

Insurance.
Maryland Casualty Co., Baltimore, Md.

Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.

Iron.
Apollo Iron & Steel Co., Pittsburgh, Pa.

The Vulcan Works, Chester, Pa.

The Murray Iron Works Co., Burlington, Ia.

John Featherstone's Sons, Chicago, Ill.

York Mfg. Co., York, Pa.

The Fred. W. Wolf Co., Chicago, Ill.

Lombard Iron Wks. & Sup. Co., Augusta, Ga.

Stillwell-Bierce & Smith-Valle Co., Dayton, O.

Newburgh Ice Machine & Engine Co., Newburgh, N. Y.

Remington Machine Co., Wilmington, Del.

Frick Co., Waynesboro, Pa.

Iron & Refrigerating Mch. Supplies.
The Davis & Egan Mch. Tool Co., Cincinnati, O.

Fairmount Machine Co., Philadelphia, Pa.

Muirhead Machine Works, Pittston, Pa.

H. L. Beach, Montrose, Pa.

Valdosta Fdy. & Mch. Co., Valdosta, Ga.

The Pratt & Whitney Co., Hartford, Conn.

Chattanooga Mch. Co., Chatta'n'ga, Tenn.

F. E. Reed Co., Worcester, Mass.

Cordesman Machine Co., Cincinnati, O.

Baxter D. Whitney, Winchendon, Mass.

The Wright Co., Lowell, Mass.

Bradford Mill Co., Cincinnati, O.

Fifield Tool Co., Lowell, Mass.

The Bailey-Lebby Co., Charleston, S. C.

J. A. Fuy & Co., The Egan Co., Cincinnati, O.

Smith-Courtney Co., Richmond, Va.

R. D. Wood & Co., Philadelphia, Pa.

S. C. Forsyth Mch. Co., Manchester, N. H.

Machinery. (Special.)
Walker & Allan, Lansing, Mich.

J. R. Alsing Co., New York, N. Y.

Baxter D. Whitney, Winchendon, Mass.

E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.

Machine Knives.
Chattanooga Saw Wks., Chattanooga, Tenn.

Machinery and Tools. (Second-hand.)
John T. Riley, Charleston, S. C.

S. L. Holt & Co., Boston, Mass.

B. M. Eversen, Pittsburgh, Pa.

Thomas Carlin's Sons, Allegheny, Pa.

Chas. E. Gregory Co., Chicago, Ill.

Frank Toomey, Philadelphia, Pa.

Smith-Courtney Co., Richmond, Va.

Machinists' Supplies.
Chas. H. Bealy & Co., Chicago, Ill.

Mail Chutes.
Cutter Mfg. Co., Rochester, N. Y.

Mill Engineers.
Hales & Ballinger, Philadelphia, Pa.

Wm. A. Chapman & Co., Providence, R. I.

C. R. Makepeace & Co., Providence, R. I.

Milling Machines.
The Davis & Egan Mch. Tool Co., Cincinnati, O.

The Pratt & Whitney Co., Hartford, Conn.

Mill Supplies.
J. R. Alsing Co., New York, N. Y.

A. R. Gowdey & Son, Providence, R. I.

De Loach Mill Mfg. Co., Atlanta, Ga.

Lombard Iron Wks. & Sup. Co., Augusta, Ga.

Wm. M. Bird & Co., Charleston, S. C.

Sprout, Waldrup & Co., Muncy, Pa.

Chas. H. Besly & Co., Chicago, Ill.

B. F. Starr & Co., Baltimore, Md.

Smith-Courtney Co., Richmond, Va.

W. J. Clark Co., Salem, O.

The Bailey-Lebby Co., Charleston, S. C.

Mecklenburg Iron Works, Charlotte, N. C.

Queen City Supply Co., Cincinnati, O.

Cameron & Barkley Co., Charleston, S. C.

American Supply Co., Providence, R. I.

Minerals.
E. Willis, Charleston, S. C.

Alpha Paint & Mineral Co., Philadelphia, Pa.

Mining Screens.
The Ludlow-Saylor Wire Co., St. Louis, Mo.

McLanahan & Stone, Hollidaysburg, Pa.

A. J. Beckley & Co., Garwood, N. J.

Mundt & Sons, New York, N. Y.

Harrington & King Perf'g Co., Chicago, Ill.

The Hendrick Mfg. Co., Ltd., Carbondale, Pa.

Mixing Machinery.
J. R. Alsing Co., New York, N. Y.

C. H. Dempwolf & Co., York, Pa.

W. D. Dunning, Syracuse, N. Y.

Walker & Elliott, Wilmington, Del.

Mortar Colors.
Sam. H. French & Co., Philadelphia, Pa.

Nails. (Wire.)
The Ludlow-Saylor Wire Co., St. Louis, Mo.

Consolidated Steel & Wire Co., Pittsburgh, Pa.

Oils.
Standard Oil Co., New York, N. Y.

Wm. M. Bird & Co., Charleston, S. C.

Chas. H. Besly & Co., Chicago, Ill.

Fernandina Oil & Cre. Wks., Fernandina, Fla.

Wm. C. Robinson & Son, Baltimore, Md.

Packer. (Cement, Paint, etc.)
The S. Howes Co., Silver Creek, N. Y.

Packing.
The Bradford Belting Co., Cincinnati, O.

The American Balance Slide Valve Co., Jersey Shore, Pa.

N. J. Car Spring & Rub. Co., Jersey City, N. J.

Boston Belting Co., Boston, Mass.

Jenkins Bros., New York, N. Y.

Paint.
W. W. Lawrence & Co., Pittsburgh, Pa.

National Paint Works, Williamsport, Pa.

Alpha Paint & Mineral Co., Philadelphia, Pa.

Chattanooga Steel Roof Co., Chatt., Tenn.

Standard Oil Co., New York, N. Y.

Alden Speare's Sons & Co., Boston, Mass.

The Armitage Mfg. Co., Richmond, Va.

Standard Paint Co., New York, N. Y.

C. S. Garrett & Son, Philadelphia, Pa.

Wm. M. Bird & Co., Charleston, S. C.

Samuel H. French & Co., Philadelphia, Pa.

Joseph Dixon Crucible Co., Jersey City, N. J.

Fernandina Oil & Cre. Wks., Fernandina, Fla.

Paint. (Asbestine Cold Water.)
Alden Speare's Sons & Co., Boston, Mass.

Paint. (Fire-resisting.)
Standard Paint Co., New York, N. Y.

Alden Speare's Sons & Co., Boston, Mass.

Paper. (Roofing, Bldg., Sheathing, etc.)
Garrett-Buchanan Co., Philadelphia, Pa.

The Standard Paint Co., New York, N. Y.

National Roofing & Sup. Co., Louisville, Ky.

The Armitage Mfg. Co., Richmond, Va.

C. S. Garrett & Son, Philadelphia, Pa.

Fay Manilla Roofing Co., Camden, N. J.

Paper. (Sand, Emery.)
Baeder, Adamson & Co., Philadelphia, Pa.

Papier Mache. (Capitals, Brackets, etc.)
L. Grosse Art Glass Works, Pittsburgh, Pa.

Paving Material.
National Roofing & Sup. Co., Louisville, Ky.

Barber Asphalt Paving Co., New York, N. Y.

Warren Chem. & Mfg. Co., New York, N. Y.

Perforated Metal.
The Ludlow-Saylor Wire Co., St. Louis, Mo.

Chas. H. Besly & Co., Chicago, Ill.

A. J. Beckley & Co., Garwood, N. J.

The Hendrick Mfg. Co., Ltd., Carbondale, Pa.

Mundt & Sons, New York, N. Y.

Harrington & King Perf'g Co., Chicago, Ill.

Phosphate Machinery.
J. R. Alsing Co., New York, N. Y.

Walker & Elliott, Wilmington, Del.

C. H. Dempwolf & Co., York, Pa.

Foss Mfg. Co., Springfield, O.

Bradley Pulverizer Co., Boston, Mass.

Sturtevant Mill Co., Boston, Mass.

McLanahan & Stone, Hollidaysburg, Pa.

Valk & Murdoch Iron Wks., Charleston, S. C.

Cameron & Barkley Co., Charleston, S. C.

The Bailey-Lebby Co., Charleston, S. C.

Phosphate Screens.
A. J. Beckley & Co., Garwood, N. J.

Mundt & Sons, New York, N. Y.

Harrington & King Perf'g Co., Chicago, Ill.

The Hendrick Mfg. Co., Ltd., Carbondale, Pa.

McLanahan & Stone, Hollidaysburg, Pa.

Pillow Blocks.
Norrish, Burnham & Co., Inc., Glen Rock, Pa.

Golden Fdy. & Mch. Co., Columbus, Ga.

Pipe. (Cast Iron and Steel.)
R. D. Wood & Co., Philadelphia, Pa.

Chattanooga Fdy. & P. Wks., Chattanooga, Tenn.

Pipe. (Coll.)
National Pipe Bend. Co., New Haven, Conn.

CLASSIFIED INDEX OF ADVERTISERS.

For ALPHABETICAL INDEX See Page 164.

Pipe. (Lead.) James Robertson Mfg. Co., Baltimore, Md.

Pipe. (Sewer and Culvert.) Austin White Lime Co., Austin, Texas.

Pomona Terra Cotta Co., Pomona, N. C. H. Stevens' Sons Co., Macon, Ga.

Pipe. (Wrought Iron.) James Robertson Mfg. Co., Baltimore, Md.

Pipe Cutting & Threading Mch. Columbus Machine Co., Columbus, O.

Henry B. Pancoast & Co., Philadelphia, Pa. D. Saunders' Sons, Yonkers, N. Y.

Pipe Wrenches. J. H. Williams & Co., Brooklyn, N. Y.

Plaster Ornaments. Samuel H. French & Co., Philadelphia, Pa.

Plating. (Nickel.) Hanson & Van Winkle Co., Newark, N. J.

Plumbers' Supplies and Tools. H. Mueller Mfg. Co., Decatur, Ill.

Haines, Jones & Cadbury Co., Phila., Pa. James Robertson Mfg. Co., Baltimore, Md.

Henry B. Pancoast & Co., Philadelphia, Pa.

Plumbago. Joseph Dixon Crucible Co., Jersey City, N. J.

Presses. (Balling, etc.) Alabama Fdy. & Mch. Wks., New Decatur, Ala.

G. H. Bushnell Press Co., Thomaston'e, Conn. De Loach Mill Mfg. Co., Atlanta, Ga.

Cardwell Machine Co., Richmond, Va. Boomer & Boscorth Press Co., Syracuse, N. Y.

Valk & Murdoch Iron Wks., Charleston, S.C.

Presses. (Stamping.) Niagara Machine & Tool Works, Buffalo, N. Y.

West Manufacturing Co., Buffalo, N. Y. Toledo Machine & Tool Co., Toledo, O.

The E. S. Stiles Press Co., Watert'n, N. Y. E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.

Pulleys, Shafting and Hangers. Christiansen Machine Co., Christiansen, Pa.

Fairmount Machine Co., Philadelphia, Pa. Jeannette Iron Works Co., Jeannette, Pa.

Norish, Burnham & Co., Glen Rock, Pa. The Jeffrey Mfg. Co., Columbus, O.

Lombard Iron Wks. & Sup. Co., Augusta, Ga. Golden Fdy. & Mch. Co., Columbus, Ga.

Nordyke & Marmon Co., Indianapolis, Ind. Lane Mfg. Co., Montpelier, Vt.

Wolf Co., Chambersburg Pa. Charlotte Machine Co., Charlotte, N. C.

E. M. Freese & Co., Gallon, O. Walker & Elliott, Wilmington, Del.

H. W. Caldwell & Son Co., Chicago, Ill.

Pumps. (Power Boiler-Feed.) Epping-Carpenter Co., Pittsburgh, Pa.

A. S. Cameron St.Pump Wks., New York, N.Y. John H. McGowan Co., Cincinnati, O.

Pumps. (Steam.) Multhead Machine Works, Pittston, Pa.

Hall Steam Pump Co., Pittsburgh, Pa. Albany Steam Trap Co., Albany, N. Y.

The E. W. Van Duzen Co., Cincinnati, O. Mason Regulator Co., Boston, Mass.

Snow Steam Pump Works, Buffalo, N. Y. Cameron & Barkley Co., Charleston, S. C.

Stillwell-Bierce & Smith-Vale Co., Dayton, O. John H. McGowan & Co., Cincinnati, O.

Henry R. Worthington, New York, N. Y. Puisometer St. Pump Co., New York, N. Y.

Dean Bros. St. Pump Wks., Indianapolis, Ind. A. S. Cameron St.Pump Wks., New York, N.Y.

Pumping Machinery. Hall Steam Pump Co., Pittsburgh, Pa.

Snow Steam Pump Works, Buffalo, N. Y.

Pump Governor. Viaduct Brass Works, Cleveland, O.

Albany Steam Trap Co., Albany, N. Y. Mason Regulator Co., Boston, Mass.

E. Reeler Co., Waukesha, Pa.

Punching and Shearing Machinery. Walker & Allian, Lansing, Mich.

West Manufacturing Co., Buffalo, N. Y. Toledo Machine & Tool Co., Toledo, O.

The E. S. Stiles Press Co., Watertown, N. Y. E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.

Bertch & Co., Cambridge City, Ind. J. M. Robinson & Co., Cincinnati, O.

Niagara Machine & Tool Wks., Buffalo, N. Y. S. C. Forsythe Mch. Co., Manchester, N. H.

Quarry and Stonecutting Mch. Sullivan Machinery Co., Chicago, Ill.

Rand Drill Co., New York, N. Y. Ingersoll-Sargeant Drill Co., New York, N.Y.

Jeffry Mfg. Co., Columbus, O.

Railroad Equipment and Supplies. (New and Second-Hand.) Benjamin Iron & Steel Co., Buffalo, N. Y.

Benj. Watson, New York, N. Y. The Steel Rail Supply Co., New York, N. Y.

M. Fogg, Philadelphia, Pa. Fitz-Hugh & Co., Chicago, Ill.

Haskins Williams & Co., Birmingham, Ala. Climax Mfg. Co., Corry, Pa.

New York Equipment Co., New York, N. Y. Dallett & Co., Philadelphia, Pa.

Smith & Kirby Co., Anniston, Ala. Block-Pollak Iron Co., Cincinnati, O.

Pittsburgh Locomotive Wks., Pittsburgh, Pa. M. Mitsubishi & Co., Detroit, Mich.

Poulterer & Co., Philadelphia, Pa. Hickman & Williams, Louisville, Ky.

The Bailey-Lebby Co., Charleston, S. C. Cameron & Barkley Co., Charleston, S. C.

L. K. Hirsch, Chicago, Ill. Robinson & Orr, Pittsburgh, Pa.

Weir Frog Co., Cincinnati, O. H. K. Porter & Co., Pittsburgh, Pa.

Baldwin Locomotive Wks., Philadelphia, Pa.

Rails. (Steel.) The Steel Rail Supply Co., New York, N. Y.

Acta Stand. Iron & Steel Co., Bridgeport, O.

Reamers. Morse Twist Drill & Mch. Co., New Bedford, Mass.

Refrigerating Plants. [See Icemaking Machinery.]

Regulators. (Water & Steam Pressure.) Crosby St. Gage & Valve Co., Boston, Mass.

H. Mueller Mfg. Co., Decatur, Ill.

Mason Regulator Co., Boston, Mass. Henry R. Worthington, New York, N. Y.

Regulators. (Damper.) Mason Regulator Co., Boston, Mass.

Road Machinery. Keystone Crusher & Roller Co., Pittsburgh, Pa.

Russell & Co., Massillon, O. The O. S. Kelly Co., Springfield, O.

Kilbourne & Jacobs Mfg. Co., Columbus, O.

Roofing. (Felt, Tar, Asphalt, Paper, etc.) Garrett-Buchanan Co., Philadelphia, Pa.

National Roofing & Sup. Co., Louisville, Ky. The Armitage Mfg. Co., Richmond, Va.

Standard Paint Co., New York, N. Y. Fay Manilla Roofing Co., Camden, N. J.

Warren Chem. & Mfg. Co., New York, N. Y. Empire Paint & Roofing Co., Phila., Pa.

C. S. Garrett & Son, Philadelphia, Pa.

Roofing and Siding. (Metal.) The New Columbus Bridge Co., Columbus, O.

Gedge Bros. Iron Roofing Co., Anderson, Ind. Chattanooga Steel Roof Co., Chatta, Tenn.

Cincinnati Corrugating Co., Piqua, O. Philadelphia Steel Roofing Co., Phila., Pa.

Cortright Metal Roofing Co., Phila., Pa.

Roofing. (Metal Shingles.) Cortright Metal Roofing Co., Phila., Pa.

Roofing. (Slate.) John Galt & Sons, New York, N. Y.

Slatington-Bangor Slate Syndicate, Slatington, Pa.

Williams & Schmid, Granville, N. Y. David McKenna, Slatington, Pa.

Roofers' and Tanners' Supplies. Niagara Machine & Tool Works, Buffalo, N. Y.

J. M. Robinson & Co., Cincinnati, O.

Rope. (Transmission.) The American Mfg. Co., New York, N. Y.

Rubber Goods. N. J. Car Spring & Rub. Co., Jersey City, N.J.

Boston Belting Co., Boston, Mass. Eureka Fire Hose Co., New York, N. Y.

Sacks. (Fertilizer, etc.) Royal Bag Mfg. Co., Charleston, S. C.

John T. Bailey & Co., Philadelphia, Pa.

Sandpaper. [See Paper.]

Safes. Cincinnati Safe & Lock Co., Cincinnati, O.

Saws. [See Woodworking Machinery.] Hammacher, Schlemmer & Co., New York.

Hanniball, Schlemmer & Co., New York. The Davis & Egan Mch. Tool Co., Cincinnati, O.

Huth Bros., Rochester, N. Y. J. H. Williams & Co., Brooklyn, N. Y.

Standard Saw Mill Machy. Co., Erie, Pa. Field Tool Co., Lowell, Mass.

H. D. Sisson & Sons, Philadelphia, Pa. Chas. H. Besly & Co., Chicago, Ill.

H. D. Sisson & Sons, Philadelphia, Pa. Henry B. Pancoast & Co., Philadelphia, Pa.

Springs. (Spiral.) Toledo Machine & Tool Co., Toledo, O.

Morgan Spring Co., Worcester, Mass. E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.

Spring. (Bicycle Saddle.) The Ludlow-Saylor Wire Co., St. Louis, Mo.

Morgan Spring Co., Worcester, Mass. The Cleveland Wire Spring Co., Cleveland, O.

Hansell Spring Co., Newark, N. J. Chas. H. Besly & Co., Chicago, Ill.

N. J. Car Spring & Rub. Co., Jersey City, N.J. N. J. Car Spring & Rub. Co., Jersey City, N.J.

Springs. (Railway and Machinery.) The Cleveland Wire Spring Co., Cleveland, O.

Hansell Spring Co., Newark, N. J.

Springs. (Railway and Machinery.) The Cleveland Wire Spring Co., Cleveland, O.

Hansell Spring Co., Newark, N. J.

Springklers. (Automatic.) [See Fire Extinguishers.]

Stair Trends. (Steel.) A. J. Beckley & Co., Garwood, N. J.

Standpipes. The Means & Fulton Iron Works, Birmingham, Ala.

Ritter-Conley Co., Pittsburgh, Pa. York Mfg. Co., York, Pa.

Broomell, Schmidt & Co., Ltd., York, Pa. M. Zier & Co., New Albany, Ind.

Alabama Bridge & Bolt Co., Birmingham, Ala. Hartley's Boiler Works, Montgomery, Ala.

Lombard Iron Wks. & Sup. Co., Augusta, Ga. Lombard Iron Wks. & Sup. Co., Augusta, Ga.

Birmingham Boiler Wks., Birmingham, Ala.

Steam Engine Indicators. Thompson & Bushnell, New York, N. Y.

Crosby St. Gage & Valve Co., Boston, Mass.

Steam Gages. Crosby St. Gage & Valve Co., Boston, Mass.

Steam Heating. L. B. Brickenstein, Salem, N. C.

The Peck-Hammond Co., Cincinnati, O. T. H. Brooks & Co., Cleveland, O.

B. F. Warren Webster & Co., Camden, N. J.

Steam Shovels. [See Dredges and Excavators.] B. F. Sturtevant Co., Boston, Mass.

Albany Steam Trap Co., Albany, N. Y. William S. Haines Co., Philadelphia, Pa.

Warren Webster & Co., Boston, Mass.

Steam Suppiles. Chapman Valve Mfg. Co., Indian Orchard, Mass.

Geo. F. Glaskin & Co., Atlanta, Ga. N. J. Car Spring & Rub. Co., Jersey City, N.J.

Wallace Stebbins, Baltimore, Md. R. D. Wood & Co., Philadelphia, Pa.

Steamship Lines. Jenkins Bros., New York, N. Y.

Buffalo & Cleveland Transit Co., Cleveland, O. Ludlow Valve Mfg. Co., Troy, N. Y.

Richmond & York River Line, Balt. Broome, Schmidt & Co., Ltd., York, Pa.

Merchants & Miners' Trans. Co., Balt. Bay Line Steamers, Baltimore, Md.

Baltimore Storage & Light Co., Balt.

Steel. (Manufacturers of) Aetna Stand. Iron & Steel Co., Bridgeport, O.

Apollo Iron & Steel Co., Pittsburgh, Pa. The Bailey-Lebby Co., Charleston, S. C.

Chester Steel Castings Co., Phila., Pa. Chrome Steel Works, Brooklyn, N. Y.

Steel. (Safe and Vault.) Chrome Steel Works, Brooklyn, N. Y.

Stokers. (Mechanical.) Westinghouse Machine Co., Pittsburgh, Pa.

The Playford Stoker Co., Cleveland, O. De Loach Mill Mfg. Co., Atlanta, Ga.

J. M. Wilkinson Mfg. Co., Bridgeport, Pa.

Stoppers and Nozzles. (For Furnaces.) R. B. Seidel, Philadelphia, Pa.

Stoves. Broome, Schmidt & Co., Ltd., York, Pa.

Stoves. (Gasoline.) Schneider & Trenkamp Co., Cleveland, O.

Studs, Nuts. Franklin S. Miles, Philadelphia, Pa.

Switch Boards, Switches, etc. Crouse-Hinds Electric Co., Syracuse, N. Y.

Stanley Electric Mfg. Co., Pittsfield, Mass. Westinghouse Elec. & Mfg. Co., Pittsburgh, Pa.

Tanks. (Iron and Steel.) The Kiechler Mfg. Co., Cincinnati, O.

The Means & Fulton Iron Works, Birmingham, Ala.

Ritter-Conley Co., Pittsburgh, Pa. York Mfg. Co., York, Pa.

Broomell, Schmidt & Co., Ltd., York, Pa. M. Zier & Co., New Albany, Ind.

Alabama Bridge & Bolt Co., Birmingham, Ala. Hartley's Boiler Works, Montgomery, Ala.

Lombard Iron Wks. & Sup. Co., Augusta, Ga. Lombard Iron Wks. & Sup. Co., Augusta, Ga.

Pittsburg Locomotive Wks., Pittsburg, Pa. Birmingham Boiler Wks., Birmingham, Ala.

Tudor Boiler Mfg. Co., Cincinnati, O. Tudor Boiler Mfg. Co., Cincinnati, O.

Valk & Murdoch Iron Wks., Charleston, S.C.

Tanks. (Wood.) G. M. Davis & Son, Palatka, Fla.

H. F. Lewis & Co., Ltd., New Orleans, La. Cypress Lumber Co., Apalachicola, Fla.

Terne Plate. C. S. Garrett & Son, Philadelphia, Pa.

Telephones. The Rawson Electric Co., Elyria, O.

Terne Plate. Aetna Stand. Iron & Steel Co., Bridgeport, O.

G. M. Gilbert & Co., Savannah, Ga.

Terra Cotta. Pomona Terra Cotta Co., Pomona, N. C.

V. H. Kriegschafer, Atlanta, Ga.

Textile Machinery. [See Cotton Mill Machinery.] Fairmount Machine Co., Philadelphia, Pa.

J. A. Gowday & Son, Providence, R. I. Crompton & Knowles Loom Works, Worcester, Mass.

Curtis & Marble Mch. Co., Worcester, Mass. Branson Machine Co., Philadelphia, Pa.

Lowell Machine Shop, Lowell, Mass. American Supply Co., Providence, R. I.

E. & B. Holmes Mch. Co., Buffalo, N. Y. Draper Co., Hopedale, Mass.

Trevor Mfg. Co., Lockport, N. Y. Whitingville Spin. Ring Co., Whiting's, Mass.

S. C. Forsythe Mch. Co., Manchester, N. H. Mason Machine Works, Taunton, Mass.

Ship Builders. (Iron and Steel.) Charlotte Machine Co., Charlotte, N. C.

Newport News Shipbuilding & Dry Dock Co., Newport News, Va. Kilburn, Lincoln & Co., Fall River, Mass.

Shoe and Dies. Providence Machine Co., Providence, R. I.

Chrome Steel Works, Brooklyn, N. Y. Easton & Burnham Mch. Co., Pawtucket, R. I.

Skylights. Aetna Stand. Iron & Steel Co., Bridgeport, O.

Pittsburgh Plate Glass Co., Pittsburgh, Pa.

Slate. (Roofing and Blackboard.) Cardwell Machine Co., Richmond, Va.

John Galt & Sons, New York, N. Y. Buckeye Iron and Brass Works, Dayton, O.

Williams & Schmid, Granville, N. Y.

Slatington-Bangor Slate Syndicate, Slatington, Pa.

David McKenna, Slatington, Pa.

Hammacher, Schlemmer & Co., New York. The Davis & Egan Mch. Tool Co., Cincinnati, O.

J. H. Williams & Co., Brooklyn, N. Y. Field Tool Co., Lowell, Mass.

Chas. H. Besly & Co., Chicago, Ill. Henry B. Pancoast & Co., Philadelphia, Pa.

Tools. (Bicycle and Electrical.) Toledo Machine & Tool Co., Toledo, O.

E. W. Bliss Co., 137 Plymouth street, Brooklyn, N. Y.

Tools. (Tinners.) Niagara Machine & Tool Wks., Buffalo, N. Y.

Torch. (Contractors.) Wells Light Mfg. Co., New York, N. Y.

Towns. Radford Board of Trade, Radford, Va.

Charleston, S. C.

Trust Companies. [See Bankers and Brokers.]

Tube Expanders. Joseph F. McCoy Co., New York, N. Y.

Tubing. The Ludlow-Saylor Wire Co., St. Louis, Mo.

Chas. H. Besly & Co., Chicago, Ill.

Turbines. [See Water Wheels.]

Valve. (Slide.) The American Balance Slide Valve Co., Jersey Shore, Pa.

Valves. Frontier Iron Works, Detroit, Mich.

Vladuct Brass Works, Cleveland, O. John Featherstone's Sons, Chicago, Ill.

The Fred W. Wolf Co., Chicago, Ill. Boston Belting Co., Boston, Mass.

Kendrick Valve & Washer Co., Syracuse, N. Y. Lehigh Valley Brass Wks., S. Bethlehem, Pa.

The Kelly & Jones Co., Greensburg, Pa. Crosby St. Gage & Valve Co., Boston, Mass.

The Lunkenheimer Co., Cincinnati, O. Mason Regulator Co., Boston, Mass.

Chapman Valve Mfg. Co., Indian Orchard, Mass.

N. J. Car Spring & Rub. Co., Jersey City, N.J. R. D. Wood & Co., Philadelphia, Pa.

Jenkins Bros., New York, N. Y. Ludlow Valve Mfg. Co., Troy, N. Y.

B. F. Schmidt & Co., Ltd., York, Pa.

Veneer Machines. The E. D. Albro Co., Cincinnati, O.

Wagon Builders' Mch. & Supplies. Cordesman Machine Co., Cincinnati, O.

Cordesman, Meyer & Co., Cincinnati, O.

H. L. Beach, Montrose, Pa.

J. A. Fay & Co., The Egan Co., Cincinnati, O.

Wall Ties. (Steel.) The Cleveland Wire Spring Co., Cleveland, O.

Washers. (Ore and Phosphate.) McLanahan & Stone, Hollidaysburg, Pa.

Valk & Murdoch Iron Wks., Charleston, S.C. Cameron & Barkley Co., Charleston, S. C.

The Bailey-Lebby Co., Charleston, S. C.

Water Columns. Reliance Gauge Co., Cleveland, O.

Water Power. Columbia Water Power Co., Columbia, S. C.

Roanoke Nav. & Wat. Pow. Co., Roanoke, N.C.

Water Wheels and Turbines. Columbia Water Power Co., Columbia, S. C.

Water Works and Sewerage. H. Mueller Mfg. Co., Decatur, Ill.

R. D. Wood & Co., Philadelphia, Pa.

Well Tools and Supplies. (Artesian.) John Muirhead & Son, Pittston, Pa.

Perry Andrews, Atlanta, Ga.

Williams Bros., Ithaca, N. Y.

Wheelbarrows and Trucks. J. W. Paxson Co., Philadelphia, Pa.

Jackson Manufacturing Co., Harrisburg, Pa.

G. L. Stuebner Iron Wks., L. Island City, N.Y.

The Jeffrey Mfg. Co., Columbus, O.

Kilbourne & Jacobs Mfg. Co., Columbus, O.

Whistles. (Chime, Sirens, etc.) Crosby St. Gage & Valve Co., Boston, Mass.

The Lunkenheimer Co., Cincinnati, O.

White Lead. Samuel H. French & Co., Philadelphia, Pa.

Windlasses and Capstans. American Ship Wind Co., Providence, R. I.

Wire Cutters. Robbins & Myers Co., Springfield, O.

Wire, Wire Rope, Barbed Wire, etc. Hazard Manufacturing Co., Wilkes-Barre, Pa.

Consolidated Steel & Wire Co., Pittsburgh, Pa.

The Jeffrey Mfg. Co., Columbus, O.

Contractors' Plant Mfg. Co., Buffalo, N. Y.

Chas. H. Besly & Co., Chicago, Ill.

Trenton Iron Co., Trenton, N. J.

Ludlow-Saylor Wire Co., St. Louis, Mo.

Wire Rope Thimbles. Jackson Manufacturing Co., Harrisburg, Pa.

Wire Goods. Ellis & Heifnerberger, Indianapolis, Ind.

Dow Wire Works Co., Louisville, Ky.

Chas. H. Besly & Co., Chicago, Ill.

Dufur & Co., Baltimore, Md.

Ludlow-Saylor Wire Co., St. Louis, Mo.

Wood-Splitting Machines. Trevor Mfg. Co., Lockport, N. Y.

Woodworking Machinery. Franklin F. Davis, Atlanta, Ga.

Huth Bros., Rochester, N. Y.

American Woodworking Mch. Co., New York.

Standard Saw Mill Machy. Co., Erie, Pa.

H. B. Smith Machine Co., Smithville, N. J.

Chattanooga Machy. Co., Chattna'u'ga, Tenn.

Cordesman Machine Co., Cincinnati, O.

Baxter D. Whitney, Winchendon, Mass.

Cordesman, Meyer & Co., Cincinnati, O.

H. L. Beach, Montrose, Pa.

Smith-Currier Co., Richmond, Va.

Lane Mfg. Co., Montpelier, Vt.

E. & B. Holmes Mch. Co., Buffalo, N. Y.

Ober Lathe Co., Chagrin Falls, O.

J. A. Fay & Co., The Egan Co., Cincinnati, O.

Trevor Mfg. Co., Lockport, N. Y.

S. C. Forsythe Mch. Co., Manchester, N. H.

NONE GREATER GILMORE GRATER THAN THE

The only one that WILL NOT CLOG.

For Soft Cheese, Lemons, Chocolate, Cocoanut, Vegetables, Bread, Soap, Etc.
A Splendid Seller.
Pays a Handsome Profit.
Prices on application.

WEST MFG. CO.
BUFFALO, N. Y.

THE COBURN PATENT TROLLEY TRACK



Fire Door Hangers.

Recommended and adopted by fire underwriters
all over the United States. SEND FOR BOOK.

THE COBURN TROLLEY TRACK MFG. CO., Holyoke, Mass.
F. H. DAVIDSON & CO., Baltimore, Md., Southern Sales Agents.

LIDGERWOOD
HOISTING ENGINES

Are built to Gauge on the Duplicate Part System.
QUICK DELIVERY ASSURED.

STANDARD FOR QUALITY AND DUTY.
FOR BUILDING PURPOSES, PILE DRIVING, EXCAVATING, Etc.

LIDGERWOOD MFG. CO.
96 Liberty Street, NEW YORK.

Chicago. Cleveland. Philadelphia.
Portland, Ore. Boston. New Orleans.

THE BROWN HOISTING AND CONVEYING MACHINE CO., CLEVELAND, O.

MACHINERY FOR HANDLING
COAL AND ORE

CRANES

NEW YORK.
HAVEMEYER BLDG.
PITTSBURG.
CARNEGIE BLDG.
CHICAGO.
MARQUETTE BLDG.

Contractors' Plant Mfg. Co. Ltd.

MANUFACTURERS OF
STEAM, HORSE and HAND POWER

Hoisting Machines.

DERRICK IRON and CONTRACTORS' SUPPLIES.

Manufacturers of Wire Rope.
Mention this journal.

129 Erie Street, Buffalo, N. Y.



OILLESS BEARINGS.
Metallized Loose Pulley
Bushes require no oil or other lubricant, either at the start or subsequently afterwards. Will run perfectly dry for years.

North American Metaline Co.
West Ave, cor. W. 3d St.
Long Island City, N. Y.

Send for loose
pulley circular No. 5



THE JOHN F. BYERS MACH. CO.
RAVENNA, OHIO.
MFRS. OF GEARED
LOCOMOTIVES,
HOISTING ENGINES,
TRAVELING
DERRICK CARS,
BUILDERS ELEVATORS,
DERRICK IRONS, HAND POWERS, BLOCKS,
SHEAVES, & CONTRACTORS' SUPPLIES.



PIN your faith to a line which has always proven a winner. It will have many valuable improvements for the season of 1898. Send for our latest catalogue. It is now ready. It will tell you all about it.

THE SCHNEIDER & TRENKAMP CO.

Chicago, Illinois.

MENTION THIS PAPER.

Cleveland, Ohio.

Wire Nails

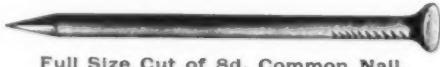
All Sizes
and Kinds.

Fencing, Staples, Galvanized and Copper Wire, Etc.

Consolidated Steel and Wire Co., Pittsburgh, Pa.

LARGEST
MANUFACTURERS
IN THE WORLD.

Southern Office and Warehouse, Louisville, Ky.



Full Size Cut of 8d. Common Nail.

Barb and Plain Wire

U. S. MAIL CHUTES

WHICH ARE
A NECESSITY IN OFFICE BUILDINGS AND HOTELS.
Write to the sole makers.
THE CUTLER MFG. CO., Rochester, N.Y.
PATENTED.

AUTHORIZED.



"KEYSTONE" OPEN LINK

It is the Best, Strongest, Quickest
to Adjust, and Only Open
Link on the market.
DROP FORGED from BAR STEEL.
Requires no tools to adjust, and
cannot work loose, open or fall out in use.



Wrenches, Hoist Hooks,
Collars, Eye Bolts, Thumb
Screws and Nuts, Machine
Handles, Fence Ornaments,
Bicycle Forgings, &c., Car-
ried in Stock.

Send for Catalogue and
Discounts.



DROP FORGINGS

of every description in
IRON, STEEL, COPPER AND BRONZE.

KEYSTONE DROP FORGE CO.,
American & York Streets,
PHILADELPHIA, PA.

Columbia Chainless Bicycles

STANDARD OF THE WORLD

The Columbia chainless bicycle has already passed harder tests than any bicycle ever made, and has proved itself the best. Other makers may decry the Columbia chainless, yet they offer you an untried imitation in the same breath.

REMEMBER THIS—We make but one quality of Columbias, and that is *the very best*. There is no varying of material, construction or quality. All Columbias are made of 5% Nickel Steel Tubing which costs twice as much and is 30% stronger than any other tubing known.

Columbia Chain Wheels,	Price 875
Hartford Bicycles,	" 50
Vedette Bicycles,	Price 840 and 35

POPE MFG. CO., Hartford, Conn.

Catalogue free from any Columbia dealer, or by mail for one 2-cent stamp.



Sturtevant Steam Traps.

TRY THEM—
You will like them.
Send for prices.

B. F. STURTEVANT CO.
Boston, Mass.

L. B. BRICKENSTEIN,
SALEM, N. C.
Automatic Sprinkler Equipments.
STEAM AND HOT WATER HEATING.

MEDAL AND DIPLOMA AWARDED
WORLD'S COLUMBIAN EXPOSITION.

Grinnell
Automatic
Sprinklers

THOUSANDS OF FIRES IN ALL PARTS
OF THE WORLD
in which the damage has been confined to
limited area, and minimum amount, show
the value of this system.

Executive Offices—Providence, R. I.

GENERAL FIRE EXTINGUISHER
COMPANY.

Information and proposals given on application.

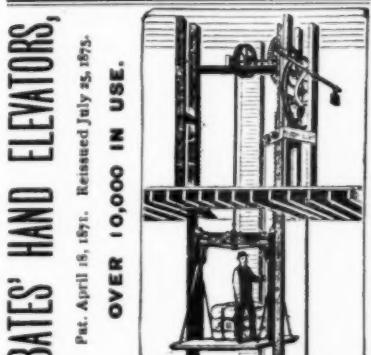
FRANKLIN S. MILES, 207 Quarry Street,
PHILADELPHIA, PA.
ESTABLISHED 1860.



FREIGHT ELEVATORS

For Hand, Belt and Electric Power.
Lag Screws, Carriage and Machine Bolts,
Drift Pins and all kinds Special BOLTS
made by

PARKHURST BROS. & CO., Indianapolis, Ind.



Adapted for Warehouses, Stores, Factories,
Hotels, Public Institutions and every place where
merchandise, &c., is transferred from one store
to another.

JAMES BATES' SONS,
Successors to JAMES BATES,
Cor. PRATT AND PRESIDENT STREET,
BALTIMORE, MD.

THE BURR PATENT
STEEL
SAFETY LIFT BLOCK
A Perfect Self-Locking Rope
Tackle Block.
Runs as freely as an ordinary
rope tackle block.
Holds more securely than a
chain block.
Locks instantly and does not
cut the rope.
Allows the load to be lowered
safely and slowly, the operator
using only one hand.
Cannot stick nor jam when
the load is to be lowered.

"I have tested the Burr Self-
locking Steel Tackle Block and
find it the most practical, quick
and reliable Safety-lift I know
of." J. C. DEBES,
Supt. of the C. & G. Cooper Co.,
Mt. Vernon, O.

Adopted by the Penna. R. R. Co.
Send for circulars and pri- es.

The BURR MANUFACTURING CO.
823 Society for Savings Bldg.,
Cleveland, Ohio, U.S.A.



SEND FOR CATALOGUE.

SKINNER CHUCKS
Independent and Universal
Chucks, Combination
Lathe Chucks with patent
reversible jaws, Drill
Chucks, Planer Chucks
and Face Plate Jaws.
SKINNER CHUCK CO.
NEW BRITAIN, CONN.

Wet Tool Grinder.

Runs an Emery or
Corundum Wheel, 14
inch. in diameter and
2 inches thick.
Has no Pumps to get
out of order.

Manufactured by
C. N. CADY,
CANASTOTA, N. Y.



WALKER & ALLAN
MACHINE WORKS,
BUILDERS OF
Power and Lever Punches.

Special Machines Made to Order.
WALKER & ALLAN MACHINE WORKS,
Write for Prices. Box 74, Lansing, Mich.



COLUMBUS MACHINE CO., Columbus, O.



SEND FOR
CAT-
ALOGUE.



SEND FOR CATALOGUE.

CANNING MACHINERY.

ESPECIALLY ADAPTED FOR THE SOUTH.
Full instructions furnished for putting up and
operating your own plant, including processing of
all the various canned goods. Prices from \$100
upwards; also Cans, Labels, Cases and Solder.

A. K. ROBINS & CO.
724 E. Pratt Street, BALTIMORE, MD.

LOBDELL CAR WHEEL CO.

Wilmington, Del.

MANUFACTURERS OF ALL KINDS OF
CHILLED WHEELS.

See large advt. in first issue of month.

SPRINGS

MORGAN SPRING CO., Worcester, Mass.
Spring Makers. Solicit our prices.

PERFORATED SHEET METALS

FOR SCREENING
Coal, Coke, Ore and Rock.



THE HENDRICK MFG. CO., LTD
CARBONDALE, PA.

See our large advertisement in last issue.

The Austin Separator Co.
72 Woodbridge St., West,
DETROIT, MICH

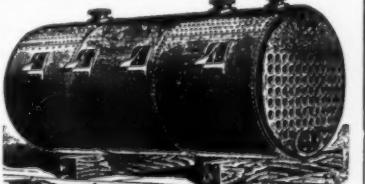
BALL AUTOMATIC
CUT OFF ENGINE
MADE ONLY
BY
THE BALL ENGINE CO.
ERIE, PA.

Alabama Bridge & Boiler Co.

ESTIMATES FURNISHED ON
Bridges and Structural Works, Tanks,
Stand Pipes, Blast Furnaces, and all
kinds of Sheet Iron Work.

Avenue A and 22d St. BIRMINGHAM, ALA.

High-Grade BOILERS
E. KEELER CO., WILLIAMSPORT, PA.



McCLAVE'S These appliances
Improved combine valuable
features for burn-
ing the smaller sizes of hard
and soft coal, such as Anthracite
Culm, Birdseye, Buckwheat
and Bituminous Slack, while
the Grate alone stands une-
qualed for burning the larg-
er sizes of these fuels with natural
draught. The Argand Blower gives
EXCELLENT RESULTS in burning
Spent Tan, Sawdust, Bagasse,
etc. For full particulars send for
other Furnaces. Illustrated Descriptive Catalogue 6.
McCLAVE, BROOKS & CO., Scranton, Pa.

Absolutely Pure.

No Lead used in
this metal.

Listen to its ring.



HOO-HOO
BABBITT METAL.
ST. LOUIS, MO.

For sale at makers' price by the following
well-known firms:

H. A. Rogers New York City
The Fairbanks Co. New Orleans
Saml. Harris & Co. Chicago
E. C. Atkins & Co. Memphis
Beals & Co. Buffalo
Strong, Carlisle & Turney Cleveland
Palmer Hardware Co. Savannah
Somers, Fitler & Clarke, Ltd. Pittsburgh
Morley Bros. East Saginaw, Mich.
Crane, Churchill & Co. Omaha, Neb.
Lombard Iron Works & Supply Co.,
Augusta, Ga.
A. M. Avery Pensacola, Fla.
Chas. M. Whitlock Wilmington, N. C.
Cotton States Belting & Supply Co.,
Atlanta, Ga.
Robt. E. Brieseneck Brunswick, Ga.
E. Corey & Co. Portland, Me.
Congdon, Carpenter & Co., Providence, R. I.
Hinckley & Egery Iron Co. Bangor, Me.
A. W. Chesterton & Co. Boston
Bailey-Lebby Co. Charleston, S. C.
J. S. Schofield's Sons & Co. Macon, Ga.
Odell Hardware Co. Greensboro, N. C.
Coffin & Leaper City of Mexico
Thos. C. Bassett & Co. Baltimore
Queen City Supply Co. Cincinnati, O.

Established 1828.

BOSTON BELTING COMPANYJAMES BENNETT FORSYTH,
Mfg. Agent and Gen. Mgr.

Manufacturers of RUBBER BELTING, HOSE, PACKING and MECHANICAL RUBBER GOODS.

250-258-260 Devonshire St., Boston.

100 and 102 Reade St., New York.

EASY RUNNING**FOUNDRY BARROWS.**

The Bearings being made full length of hub cutting is avoided.



All Parts Extra Heavy.

BARROWS FOR

Contractors, Mines, Mills, Railroads.

JACKSON MFG. CO., Harrisburg, Pa.

ASK FOR CATALOGUE.

Mining Cars.

Wire Rope Thimbles.

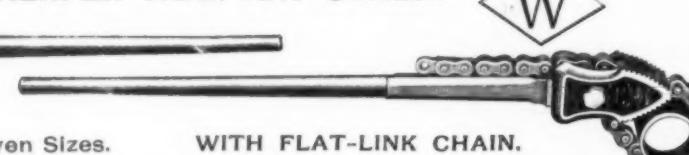
VULCAN CHAIN PIPE WRENCH.

BETTER AND CHEAPER THAN ANY OTHER.

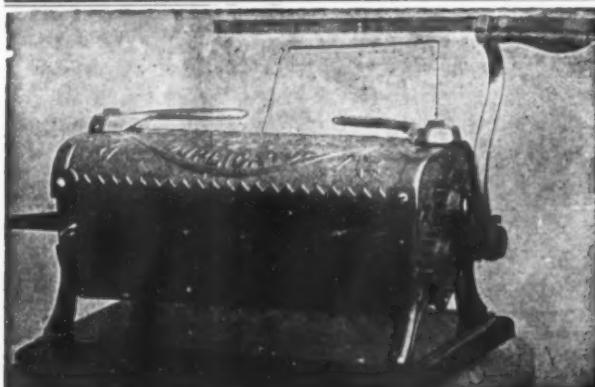


WITH CABLE CHAIN.

Seven Sizes.



WITH FLAT-LINK CHAIN.

J. H. WILLIAMS & CO.,9 to 31 Richards Street (near Hamilton Ferry),
BROOKLYN, N. Y.**DROP-FORGINGS.****Hurry Up Copying Machine.**No Blotter Baths. No Copy Books.
No Wet Cloths. No Wet Brushes.
Always a clean, accurate, uniform copy.We make the most complete and modern
LETTER CABINET FILE

in existence. Write for our illustrated catalogue.

The Piqua Copying Machine Co.
PIQUA, OHIO.**Coal Efficiency.**

Having been subjected to the most severe tests and being in constant use by the largest consumers of coal in this and other countries, our product amply sustains all of our claims. Its freedom from clinker, slate, etc. insures the least possible injury to grate bars.

Our Illustrated Pamphlet will prove interesting.

DAVIS COAL AND COKE CO., Baltimore, Philadelphia, New York, Boston.**SUPERIOR
COKE
AND
COAL**The Standard Coal Co., Brookwood, Ala.,
Produces the Best Foundry Coke in the South, and the Highest Grade Washed Blacksmith Coal. Our celebrated "Mill-dale Seam" of Coal is superior for steam purposes. This Coal is used exclusively by the Government, on its war vessels Pensacola and Mobile.FOUNDRY COKE AND BLACKSMITH COAL OUR SPECIALTIES.
Correspondence from foundries, factories and users of steam coal invited.

Our Coast Agents, MOBILE COAL CO., A. C. Danner, Presdt., MOBILE, ALA.

CASTNER, CURRAN & BULLITT,

General Agents for the

**Celebrated POCOHONTAS
Smokeless Semi-Bituminous
- COAL.**

MAIN OFFICE:

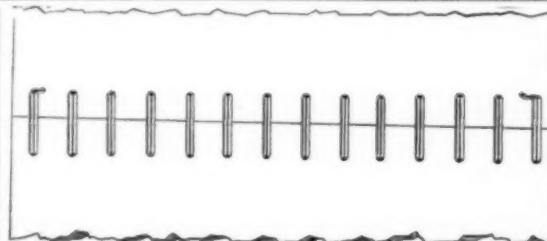
326 Chestnut St., - PHILADELPHIA, PA.

BRANCH OFFICES:

Broadway, New York. 79 Kilby Street, Boston, Mass. 36 Main Street, Norfolk, Va. 4 Fenchurch Avenue, London, England.

Neave Building, Cincinnati, O. Terry Building, Roanoke, Va. Old Colony Building, Chicago, Ills.

Board of Trade Building, Columbus, O.

**Globe Composition
WIRE - LACE.**

WRITE FOR PRICES.

J. M. HAYDEN & CO.

No. 68 Pearl Street,

GRAND RAPIDS, MICH.

Don't Make a Mistake.

A comparison of merits of different makes of Elevator Buckets will always result in a decision that the "SALEM" has no equal for long and satisfactory service. Send for price list.

The W. J. CLARK CO., Salem, Ohio, Sole Manufacturers.

Have you used the



RHOADS BELT?

If you have not, write us for prices.

J. E. RHOADS & SONS,
239 Market St., Philadelphia. WILMINGTON, DEL.

The "Original Gandy"

Sewed Cotton Duck Belting.

Especially adapted for Mill Drivers, Saw Mills, Cotton Gins, Cotton Presses, and for all places where belts are subjected to moisture or atmospheric changes, the "GANDY" stands paramount.

For further information, prices, etc., write

The Gandy Belting Co.
BALTIMORE, MD.

SOUTHERN DIRECT AGENTS.—Whitney & Sloo Co., New Orleans, La.; Graton & Knight Mfg. Co., Atlanta, Ga.; Bowler & Shinn, Nashville, Tenn.; Smith & Courtney Co., Richmond, Va.; W. E. Caldwell Co., Louisville, Ky.; L. M. Rumsey Mfg. Co., St. Louis, Mo.

Stitched Cotton Belting

Sphinx and Durable

For Machine Driving and Threshing Machines.

Linen Fire Hose

Red and Blue Line,
Standard,
Competition.

Above are Pure Flax.

L. C. Grade for Rubber Lining.
Mixed Yarn.

Also Manufacturers of

"Camel" Brand Hair Belting.

The Rossendale-Reddaway Belting & Hose Co., Newark, N. J., U. S. A.**USE SCHIEREN'S**
VIRGINIA & TENNESSEE
OAK TANNED BELTING**CHAS. A. SCHIEREN & CO.**

New York.

Boston.

Philadelphia.

Chicago.

TANNERY: BRISTOL, TENN.

"OUR NAME AND BRAND A GUARANTEE OF QUALITY."

HIGH-GRADE RUBBER GOODS.

Belting, Packing, Tubing, Springs, Valves,
Gaskets, Mats and Matting,
Rubber-Lined Linen and Cotton Hose.

SEND FOR SAMPLES, ETC.

N. J. CAR SPRING & RUBBER CO., Jersey City, N. J.

We Make

LEATHER BELTING

Let us tell you the details.

Cleveland Branch:
102 SUPERIOR STREET.

I. B. WILLIAMS & SONS,

A postal will bring them.

Main Office & Factory:
DOVER, N. H.For
Electrical Work
THAT CANNOT BE BEATEN.Chicago Branch:
205 LAKE STREET

JEWELL BELTING CO.

MANUFACTURERS OF

Short Lap = = = Oak Belting.

JEWELL EXTRA

--- HARTFORD ---

JEWELL DYNAMO



For High Speed.

Like the Extra, except in Thickness and Weight.

For Great Speed.
Warranted to Furnish Steady CurrentMAIN OFFICE:
HARTFORD, CONN.BRANCHES:
175-177 Lake St., CHICAGO.
240-250 W. Somerset St., PHILA.

The BRADFORD BELTING CO.

203 Walnut Street, CINCINNATI, OHIO.

SOLE MANUFACTURERS OF

"Monarch" and "Bradford
Dynamo" Rivetless . . .
Leather Belting.ALSO DEALERS IN
Rubber Hose, Rubber Belting, Packing,
Electrical Supplies and Wood
Split Pulleys.

EUREKA FIRE HOSE CO.

13 BARCLAY STREET,
ORIGINAL MANUFACTURERS

NEW YORK CITY.

"Eureka"

THREE PLY.

"Red Cross"

ONE PLY.

"Paragon"

TWO PLY.

**Cotton Hose**ALL SIZES.
RUBBER LINED.**"U. S." BRAND RUBBER LINED COTTON FIRE HOSE.**

Adopted as the Standard Factory Fire Hose by the Associated Factory Mutual Fire Insurance Companies, for Factory and Mill Fire Protection.

LINEN HOSE (LINED AND UNLINED) ALL SIZES.

EUREKA BELTING, &c.

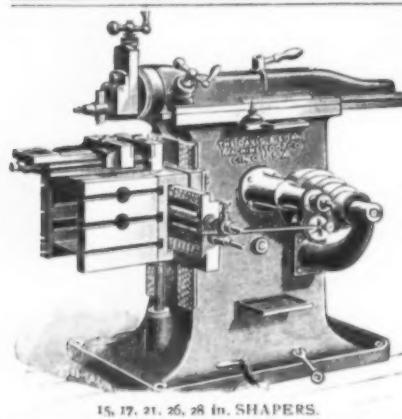
THOS. K. CAREY & BROS. CO., AGENTS.

26 Light Street, BALTIMORE, MD.

CHICAGO BELTING CO.

Manufacturers of RELIANCE LEATHER BELTING.

Main Office and Factory,
67-71 South Canal St., CHICAGO.
316-318 St. Charles St., NEW ORLEANS.
203 Main St., MEMPHIS.
730 N. Second St., ST. LOUIS, MO.



The Davis & Egan MACHINE TOOL CO. STANDARD MACHINE TOOLS.

Builders of

Engine Lathes, Shafting Lathes, Pulley Lathes, Planers, Shapers, Milling Machines, Screw Machines, Upright Drill Presses, Radial Drills, Boring Mills, Bolt Cutters, Monitor and Turret Lathes, Etc.

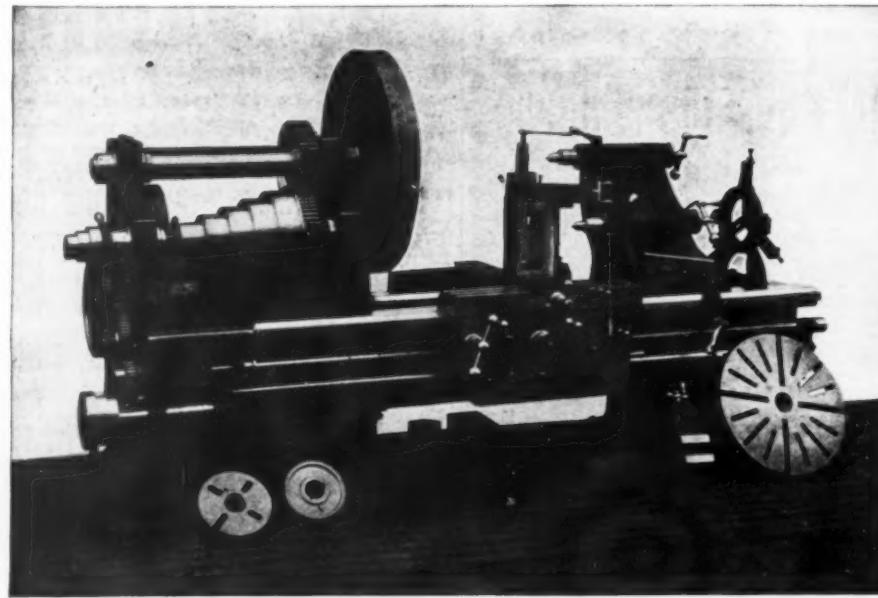
Works: CINCINNATI, OHIO, U. S. A.

15, 17, 21, 26, 28 in. SHAPERS.

NEW YORK:
107 Liberty Street.CHICAGO:
68 S. Canal Street.ST. LOUIS:
720 N. Second Street.BOSTON:
36 Federal Street.PHILADELPHIA:
19 N. Second Street.

McCABE'S Double- Spindle Triple- Geared LATHE

is actually
TWO Lathes in ONE
Combining a heavy regular
26-in. and a Triple-geared
44-in. Swing.



Wide Range of
Speeds and Feeds.

Send for Catalogue, and
see what people using them
say.

J. J. McCABE,
14 Dey Street,
NEW YORK.

Philadelphia Branch:
THE BOURSE.

ENGINE LATHES. FIFIELD TOOL CO.

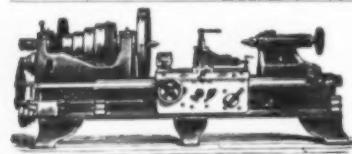
LOWELL, MASS., U. S. A.

ENGINE LATHES 17" to 72" SWING.

Photo-cuts, description and prices on application.
Two acres devoted entirely to manufacturing Engine Lathes.

MORTON, REED & CO., Agents,

BALTIMORE, MD.



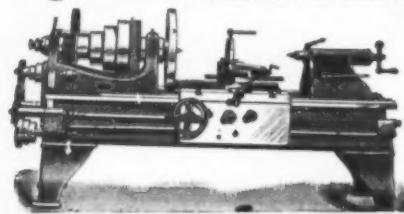
HAND... TURRET
SCREW-CUTTING

LATHES AND PLANERS

ARE MANUFACTURED BY

DRAPER MACHINE TOOL CO., WORCESTER, MASS., U. S. A.
WRITE US FOR PRICES AND CUTS.

High-Class ENGINE LATHES.



PATENTED
With NEW and VALUABLE FEATURES.
Made only by
THE BRADFORD MILL CO.
CINCINNATI, OHIO, U. S. A.
Schuchardt & Schutte, Berlin, Germany.
Charles Churchill & Co., Ltd., London and
Birmingham, England.
The Cooke Machinery Co., No. 165 Washington
street, New York, N. Y.
The J. A. Fay & Egan Co., Chicago, Ills.
The E. A. Kinsey Co., Cincinnati, O.

ENGINE LATHES.

10" to 30" Swing, Inclusive.

Send for Catalogue.

F. E. REED COMPANY,

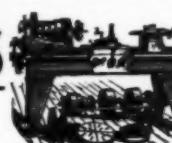
THOS. K. CAREY & BROS. CO., Agents, BALTIMORE, MD.

MACHINE TOOLS.

WORCESTER, MASS.

LATHES

16 in. to 36 in. Swing



THE WRIGHT CO.

LOWELL,
MASS.

MORSE

TWIST DRILL AND MACHINE CO.,

NEW BEDFORD, MASS., U. S. A.



MILLING CUTTERS.



Holders with Inserted Cutters,

For Turning, Cutting Off, Threading, Shaping and Boring METALS. The Cutters are inexpensive and may be sharpened by grinding, without changing the form.

MILLING CUTTERS,
in variety, carried in stock and made to order. Punches and Dies for plate work; Taps, Dies, Reamers, Gauges, Renshaw Ratchet Drills.

ASK FOR CATALOGUE "S."

THE PRATT & WHITNEY CO., Hartford, Conn., U. S. A.
NEW YORK, 125 Liberty Street. BOSTON, 144 Pearl Street.
CHICAGO, 42 S. Clinton Street.

Machine Shop Equipments and Blacksmith

A SPECIALTY.

Engine Lathes, Chucks, Drill Presses, Shaping Machines, Power Hammers, Bolt and Nut Machinery, Portable Forges, &c., Pressure Blowers and Emery Grinding Machinery.

Send for Catalogue of Machine Tools, stating exactly what is required, so that prices may be quoted. Delivered your station if so desired.

S. C. FORSAITH MACHINE CO., MACHINISTS AND GENERAL MACHINERY DEALERS.

MANCHESTER,
N. H.

D. SAUNDERS' SONS.

MANUFACTURERS OF IMPROVED



PIPE VISSES

of all styles and sizes, holding $\frac{1}{2}$ to 8 inch Pipe; made of MALLEABLE IRON, CAST IRON and STEEL. Also PIPE THREADING MACHINES, $\frac{1}{2}$ to 18 inches, Hand Pipe Cutters, Stocks and Dies, Tapping Machines, &c. Send for catalogue to

31 Atherton Street,

YONKERS, N. Y.

TOOLS
AND SUPPLIES

TOOLS FOR ALL TRADES.

BOLTS AND SCREWS.

BELTING.

EMERY WHEELS.

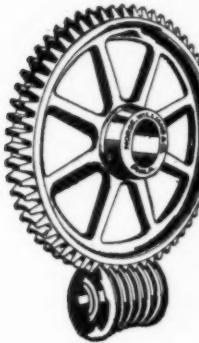
GLUE HEATERS.

VENEER PRESSES.

CIRCULAR SAWS, &c.

HAMMACHER, SCHLEMMER & CO.

209 Bowery, NEW YORK.

HINDLEY
WORM GEARING

Manufactured by

MORSE, WILLIAMS & CO.

PHILADELPHIA, PA., U. S. A.

SEND FOR CATALOGUE AND PRICES.

Graphite and Bronze Bearings

For Machinery of all kinds,

Especially for Friction Clutch and Loose Pulleys,
Baggage Truck Axle Boxes,
Mine Car Axle Boxes,
Tackle Block Bushings,
Wind Mill Bearings,
Wheel Governor Bearings for Engines,
Street Railway Motor Bearings,
Trolley Wheel Bushings, etc., etc.

The GRAPHITE LUBRICATING CO., Bound Brook, N. J.



Nonpareil Anti-Friction Metal.
Best Anti-Friction Metal for all machinery bearings.
For high speed and heavy crushing weight.
It has no equal.

THEO. HIERTZ & SON, Sole Manufacturers,

30th St. and Park Avenue, ST. LOUIS, MO.

Manufacturers all grades Babbitt Metals, Solder, Bar Tin, Bar Lead, Lead Car Seals, Pig Tin, Pig Lead, Antimony, Copper, Spelter, etc.

STEEL
CASTINGS

FROM 1 TO 40,000 POUNDS WEIGHT
Of Open Hearth, or Chester Steel.
True to Pattern, Sound, Solid.
Gearing of all kinds, Crank Shafts, Knuckles for Car Couplers,
Cross Heads, Rockers, Piston Heads, etc., for Locomotives.
STEEL CASTINGS OF EVERY DESCRIPTION.

CHESTER STEEL CASTINGS CO.
Works, Chester, Pa. Office, 407 Library St., Phila., Pa.

A WHEEL THAT CUTS.

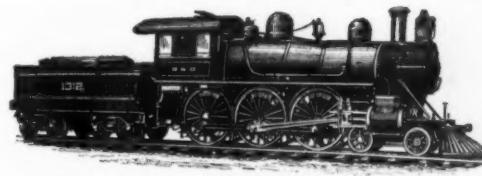
"CYCLONE"

BEATS THE WORLD.

Vitrified Emery Wheel Co., WESTFIELD, MASS.

FOR SAW GUMMING
NONE BETTER.EMERY
WHEELS

BALDWIN LOCOMOTIVE WORKS.

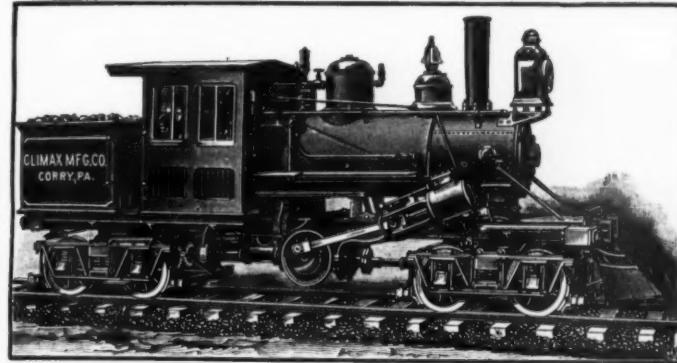


No. 1312 — Built for the Baltimore & Ohio Railroad.

SINGLE EXPANSION and COMPOUND LOCOMOTIVES

Adapted to every variety of service and built accurately to standard gauges and templates. Locomotives for Logging Railroads and Sugar Estates, Electrical Locomotives, Steam Tramway Motors, Mine Locomotives, Furnace Locomotives.

BURNHAM, WILLIAMS & CO. Philadelphia, Pa.



Tramway Locomotives and Cars For Steel, Iron, Wood or Pole Road.

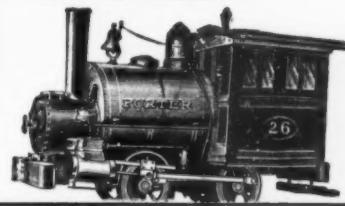
Weight of Locomotives from eight to thirty-five tons. Every wheel a driver.
Adapted for steep grades, sharp curves and uneven track. CATALOGUES FREE.

CLIMAX MFG. CO., BUILDERS, CORRY, PA.

SPECIAL OFFER.

On bona fide request of any railroad contractor, or mine, mill, furnace, plantation, logging or other railway owner or operator, or other prospective buyer, we will mail free our new 216 page pamphlet describing 394 designs Light Locomotives, steam, electric and compressed air. To accommodate persons not requiring locomotives, a copy will be sent on receipt of 50 cents.

H. K. PORTER & CO.
6th Avenue, PITTSBURGH, PA.
Locomotives narrow and wide gauge, always on hand.



HANSELL SPRING COMPANY
MANUFACTURERS OF
RAILWAY & MACHINERY SPRINGS
OF HIGH GRADE CRUCIBLE STEEL, OIL TEMPERED,
JAPANNED, TINNED & COPPERED. Send for Catalogue
FURNITURE SPRINGS. 915 ALLING ST. NEWARK, N.J.



Hundreds OF TESTIMONIALS

SHOWING THESE CASTINGS HAVE PROVED THE
MOST SATISFACTORY FOR ALL PURPOSES REQUI-
RING STRENGTH AND DURABILITY.

CHROME STEEL WORKS,
Kent Ave., Keap and Hooper Sts.,
BROOKLYN, N. Y.

Walker Universal
Tool and Cutter Grinder

SEND FOR COMPLETE CATALOGUE.

NORTON EMERY WHEEL CO.

WORCESTER, MASS.

THOS. K. CAREY & BROS. CO., Southern Agents, BALTIMORE, MD.

PURE SAPPHIRE
CORUNDUM AND EMERY WHEELS.

THE BEST FOR ALL PURPOSES

WRITE FOR PRICES

SCRANTON-CORUNDUM AND EMERY WHEEL WORKS,
SCRANTON, PA.

YORK MANUFACTURING CO. YORK, PA.

.... MANUFACTURERS OF

Horizontal and Vertical Steam Engines.

Ice and Refrigerating
Machinery.

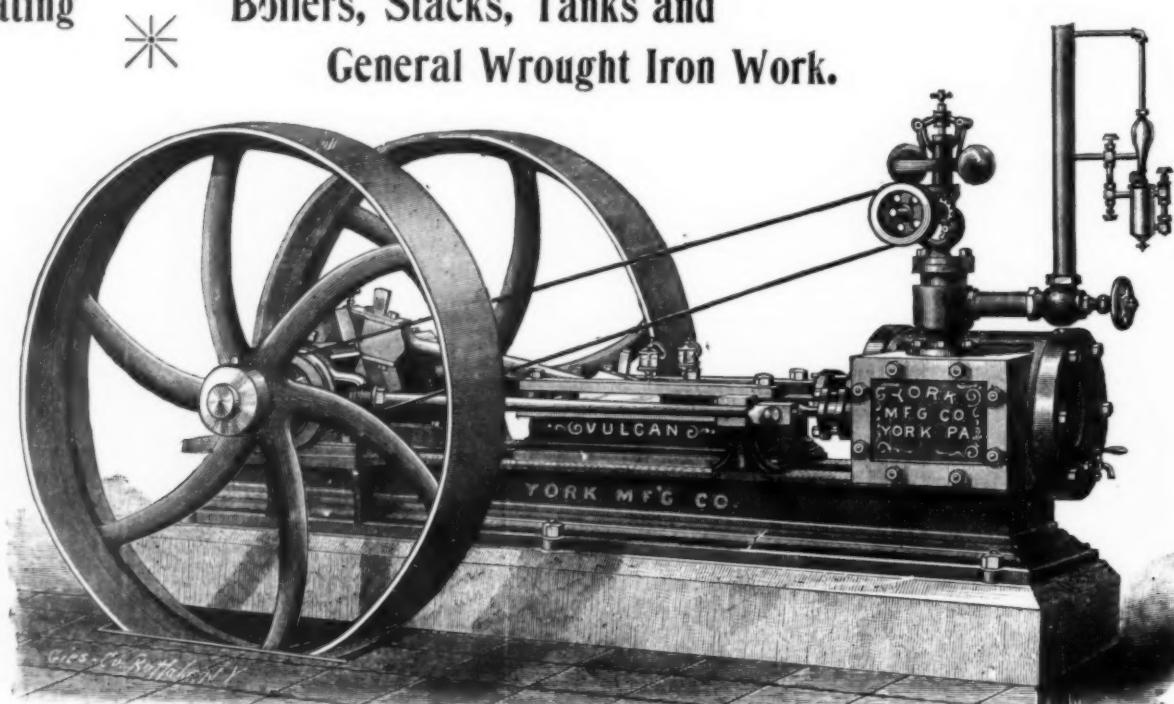


Boilers, Stacks, Tanks and
General Wrought Iron Work.

Steel Plate
Chimneys and
Stand Pipes
for . . .
Waterworks.

Philadelphia Office:
476 Bourse Building.

New York Office:
Bowling Green Building.



PRESIDENT, P. H. GLATFELTER. SECRETARY AND TREASURER, W. L. GLATFELTER. GENERAL MANAGER, THOS. SHIPLEY.

ENGINES, BOILERS. SAW MILLS. PRESSES.

Write to

GENERAL MANUFACTURERS OF

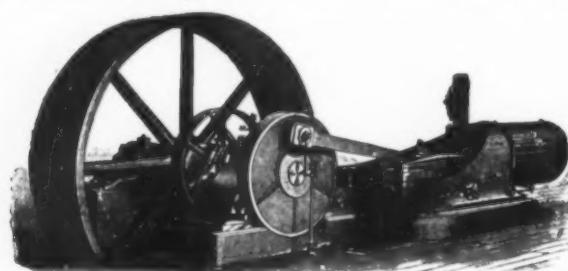
MECKLENBURG IRON WORKS, Charlotte, N. C.

MACHINERY

Buckeye Engine Company,

SALEM, OHIO.

J. T. CASTLE, Sales Agent, Manufacturers' Record Building, Baltimore, Md.



Horizontal and Vertical Engines,

Simple, Compound and Multiple Cylinder,
FOR ALL CLASSES OF WORK.

CATALOGUES UPON APPLICATION.

ECLIPSE CORLISS ENGINES.

FRICK COMPANY, ENGINEERS. BUILDERS,
WAYNESBORO, PA.

NEW YORK OFFICE, Taylor Building, 39-41 CORTLANDT STREET.

40 to 1000 Horse-Power Made—Condensing, Non-Condensing and Compound.
Send for CORLISS Circular.

Ice-Making and Refrigerating Machinery. Send for Ice-Making Circular.
SPECIAL HIGH-SPEED AUTOMATIC ENGINES, STEAM BOILERS,
Send for our General Catalogue TRACTION and PORTABLE ENGINES, SAW MILLS

IDEAL and SLIDE VALVE ENGINES.
STEAM SUPPLIES and BOILERS.

WALLACE STEBBINS, 111 East German Street,
BALTIMORE, MD.



THE MURRAY IRON WORKS CO., BURLINGTON, IOWA.

SIOUX CORLISS ENGINES.

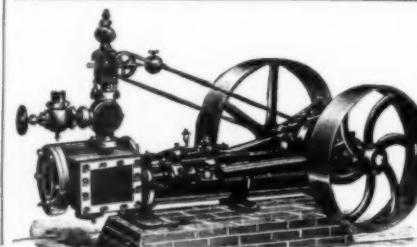
Simple and Compound. Direct Connected when desirable.

These Engines are built from new patterns. They are not old fashioned nor of conventional design, but they embody the latest ideas in mechanical engineering. They excel in regulation, economy and efficiency, and the World's Fair diploma awarded them contains these among other words of high praise:

"ADmirably Adapted for Electric Lighting."

Our No. 28 Catalogue takes up and illustrates all points. Send for it. We carry in stock eight

of the sizes of simple engines most in demand, and can build compounds in a reasonable time.



Counter - Balanced
Center Crank Engines,

MANUFACTURED BY
The HIGH POINT MACHINE WORKS,
High Point, N. C.

ALSO MANUFACTURERS OF
Variable Feed Saw Mills and Cotton Mill Castings.

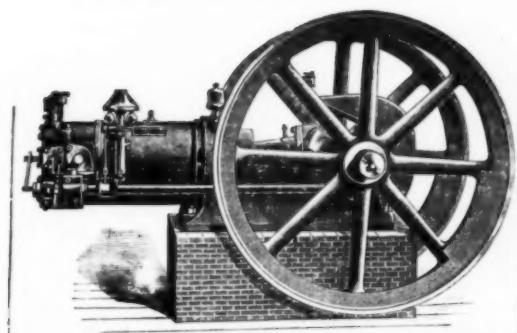
"OTTO" Gas Engines,

ALL SIZES.

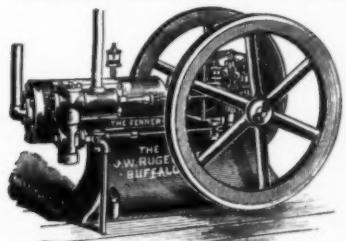
THE "OTTO"
GAS ENGINES,
Philadelphia.

SMITH-COURTNEY & CO.
Richmond, Va.

50,000
IN USE.



OUR NEW 1897 Gas and Gasoline ENGINES



5 H. P.
THE J. W. RUGER MFG. CO.

ARE THE
MOST RELIABLE.

Highest Efficiency for Electric Lighting,
Giving a Regular Steady Speed.

Simplest and Best for General Power,
Being Clearly and Perfectly Safe.

Write for our new Catalogue and state kind of
work you require engine for, amount of power, and
whether you will use gas or gasoline, and we will
make you proposition that will bring the order.

Mention the Manufacturers' Record.

214-222 Chicago Street,
BUFFALO, N. Y.

We are the Sole Makers of the
ORIGINAL

Lewis Gas Engine
IMPROVED.

Most Economical Engine Built,
Simple in Construction, so anyone can
operate it. Will out-live any engine
on the market, because it is built
right. We also give MORE POWER
for the money invested than you can
get elsewhere.

If you want an Engine, let us hear from you.

J. Thompson & Sons Mfg. Co.
BELOIT, WIS., U. S. A.

FOOS GAS AND GASOLINE ENGINES

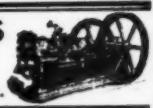
EXCEL ALL OTHERS IN DESIRABLE FEATURES.
Adapted for ALL Power Purposes—Electric Lighting, Milling,
Mining, Water Works, Elevators, Factories, etc. Cheaper
and better than steam. WRITE BEFORE PURCHASING.

FOOS GAS ENGINE CO., Springfield, Ohio.



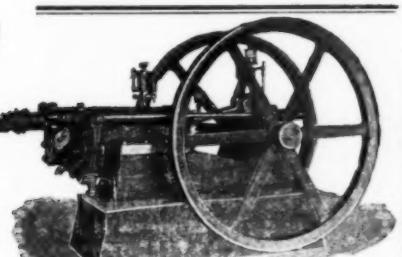
FRONTIER GASOLINE and GAS ENGINES

Vertical, 1 to 10 H. P. Tandem, 10 to 100 H. P.
An Impulse Every Revolution.
FRONTIER IRON WORKS, Guerin and Chene Sts., Detroit, Mich.



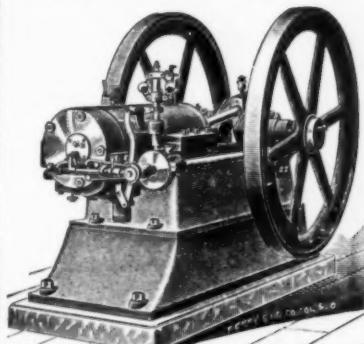
GAS AND GASOLINE ENGINES

Using Natural Gas,
Coal Gas Producer
Gas and Gasoline—
direct from the tank.
1 to 40 H. P. Inter-
esting Catalogue.
THE SPRINGFIELD
GAS ENGINE CO.
10 W. Washington St.
SPRINGFIELD, Ohio.



The MIAMI, Uses any kind of
Gas or Gasoline.
Send for Circular. Correspondence solicited.
THE MIDDLETOWN MACHINE CO., Middletown, Ohio, U. S. A.

The BROWN GAS and GASOLINE ENGINE.



Uses Gas or Gasoline. Makes no compression
while engine is running idle. Charges fired with
electric spark. Made upon honor and fully
guaranteed. Write for description and prices.

Columbus Machine Co.,
COLUMBUS, O.

W. D. FORBES & CO., Engineers,
HOBOKEN, N. J.

See illustrated ad. first issue each month.

Priestman Oil Engine Burns OIL, Not GASOLINE.

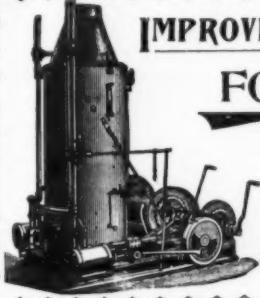
Safety, High Efficiency,
Small Fuel Consumption,
No Engineer,
No Steam Boiler,
No Ashes.



Can be used for any purpose.
SEND FOR CIRCULAR.
PRIESTMAN & CO. Inc.
Bourse Building,
PHILADELPHIA, PA.

IMPROVED HOISTING ENGINES,

FOR PILE DRIVING, RAILROADS, BRIDGE
BUILDING, MINES, QUARRIES, COAL
HOISTING and BUILDING PURPOSES.



OVER 350 SIZES AND STYLES.
Log Hauling by Steam and Suspension Cableways.

LAMBERT HOISTING ENGINE CO.

Successors to W. A. CROOK & BROS. CO.
127-123 Pointer Street, NEWARK, N. J.
Salesrooms—143 Liberty St., New York.

HARTLEY'S BOILER WORKS

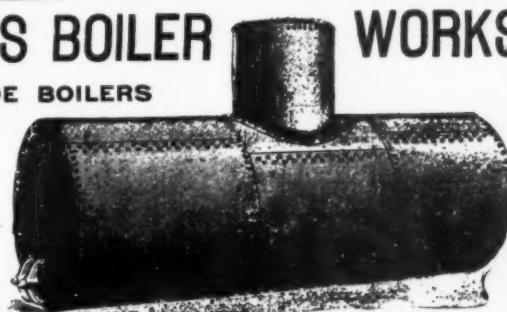
HIGH GRADE BOILERS

STANDPIPES, TANKS,
SMOKESTACKS, ETC.

A full line of
BOILERS,
FRONTS,
GRATE BARS and
Other Fixtures
always on hand.

All kinds of BOLTS made to order

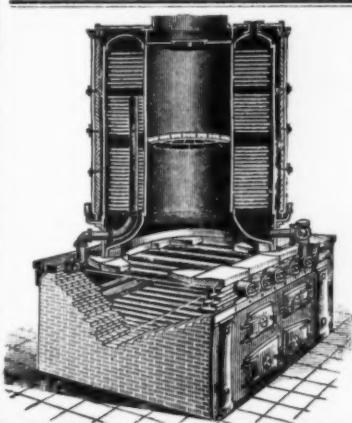
MONTGOMERY,
ALA.



Berry Safety Boiler.

Patents 519,015-542,674.

Economizes space, fuel, maintenance
and first cost to a greater degree than
any other boiler.



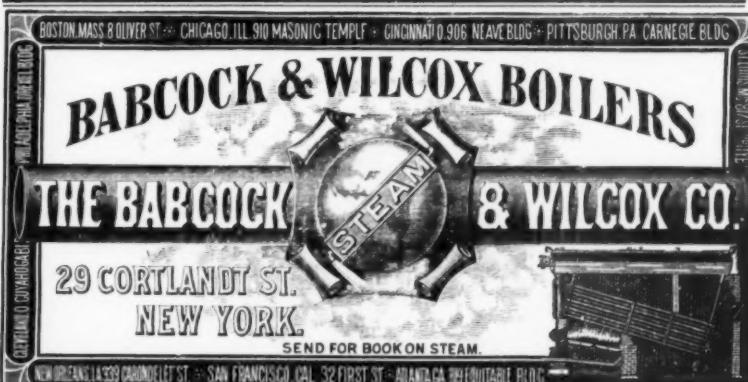
Combines Simplicity and Durability.

Horse Power units of 250, 200, 150, 100 and 50.

MANUFACTURED BY

ROBT. WETHERILL & CO.
CHESTER, PA.

Corliss Engine Builders.



AWARDED THE GRAND PRIZE AT THE LATE PARIS EXPOSITION.

WILKINSON STOKER,

The Great Money and Labor Saver. WILKINSON MFG. CO., 678 Bourse Bidg. Phila. or Bridgeport, Pa.

BOILERS

With Rivet Holes Drilled after Plates are Bent and in Position, Tanks and Sheet Iron Works
Engines, Cotton Gins and Presses. Machinery for Fertilizer Works and Phosphate Washers, Asbes-
tos Magnesia Pipe Covering and Magnesia Cement Felted for Boilers, Domes, Steam Piping, etc.

VALK & MURDOCH IRON WORKS, Charleston, S. C.

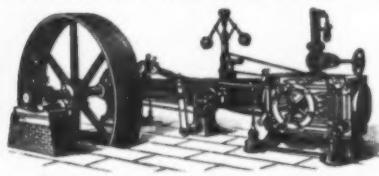


The Tudor Boiler Manufacturing Co.
Steam Boiler and Tank Makers

Office, 246 E. Pearl St. (opp. Pittsb. Cin. & St. L. R.) Cincinnati, O.

SECOND-HAND BOILERS ALWAYS ON HAND.

NEWBURGH ICE MACHINE & ENGINE CO.



Successors to
Whitehill Engine & Pictet Ice Machine Co.,
Office and Works, NEWBURGH, N. Y.
New York Office, 44 Taylor Building,
39-41 Cortlandt Street.
Whitehill Corliss Engines,
SIMPLE, COMPOUND AND CONDENSING,
Ice and Refrigerating Machinery, Iron and Brass Castings

NEWPORT NEWS
Shipbuilding and Dry Dock Co.WORKS AT NEWPORT NEWS, VA.
(ON HAMPTON ROADS)

Equipped with a Simpson Basin Dry Dock, capable of docking a vessel 600 feet long, drawing twenty-five feet of water, at any stage of the tide.

Repairs made promptly and at reasonable rates.

SHIP AND ENGINE BUILDERS

For estimates and further particulars address

C. B. ORCUTT, President,

No. 1 BROADWAY.

NEW YORK.

Canning House Machinery,

BOILERS, ENGINES, DYNAMOS and MOTORS.

Complete Electric and Steam Plants.

Manufacturers HIGH-GRADE BICYCLES.

MARYLAND MFG. & CONSTRUCTION CO.

336-342 North Street,

BALTIMORE, MD.

ROSS' REVERSIBLE BALL GAUGE COCK.



LEHIGH VALLEY BRASS WORKS, South Bethlehem, Pa. J. George Lehman, Proprietor.

This gauge cock has two rubber strips, forming the valve seats. When one is worn out reverse the ball to the other seat. The worn out rubber can then be taken out and a new one replaced ready for use. We also manufacture a full line of superior brass globe valves, steam cocks, Ross' gate valves for gas and water, gauge cocks, lubricators. Write for catalogue and discounts. We do not make competition goods. George Lehman, Proprietor.

Bachelder Adjustable Spring Steam Engine Indicator and Ideal Reducing Wheel make a complete outfit.

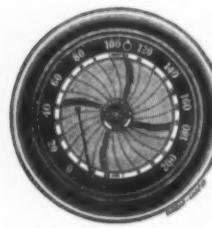
Thompson's Sectional Dumping Bar. Send for description and prices.

THOMPSON & BUSHNELL, 120 & 122 Liberty St., New York.

"PROVIDENCE" WINDLASSES. CAPSTANS

Best in the World.

BUILT BY THE AMERICAN SHIP WINDLASS CO., Providence, R. I.

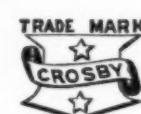


CROSBY RECORDING GAGES.

Patent Gage Testers,
Pressure Recorders,
Revolution Counters,
Feed Water Regulators,
Pop Safety Valves,
Water Relief Valves,
Original Single Bell Chime
Whistles,

Improved Steam Gages,
Steam Engine Indicators,
Braden Pump Valves,
Sight Feed Lubricators,
Recording Gages,
Ammonia and Gas Indicators,
Ammonia Gages,
Vacuum Gages,

CROSBY STEAM GAGE & VALVE CO., Main Office and Works:



Perfectly accurate and Reliable
for Recording any Kind or Degree
of Pressure wanted.

ENGINES AND BOILERS.

Tanks, Stacks, Stand Pipes and Sheet-Iron Work; Shafting, Pulleys, Gearing, Boxes, Hangers, etc. Mill Castings.
Cast every day; work 180 hands.

LOMBARD IRON WORKS & SUPPLY CO.

AUGUSTA, GEORGIA.

The "American" Fuel Economizer

BURPEE'S PATENTS.

FOR UTILIZING WASTE HEAT FROM STEAM BOILERS.

No large steam user can afford to run without an Economizer.

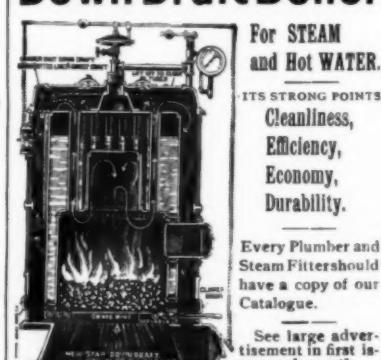
The "American" is the best Economizer in the world.

BROOMELL, SCHMIDT & CO., Ltd., Manufacturers,

Cable Address, Broomell, York.
"A B C" Code, Fourth Edition.

SEND FOR CATALOGUE.

YORK, PA.

For STEAM
and HOT WATER.

ITS STRONG POINTS
Cleanliness,
Efficiency,
Economy,
Durability.

Every Plumber and
Steam Fitter should
have a copy of our
Catalogue.

See large advertisement in first issue each month

HARRISBURG MFG. & BOILER CO., Harrisburg, Pa.

ICE MACHINES

JOHN FEATHERSTONE'S SONS, 354-8 N. HALSTEAD ST., CHICAGO.

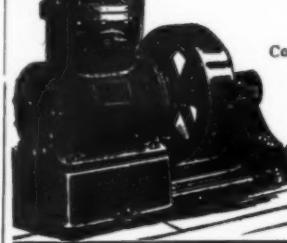
SOUTHERN OFFICE, 406 CHALIFOUX BLDG., BIRMINGHAM, ALA.

Ice-Making & Refrigerating
MACHINERY.

Horizontal and Vertical

COMPRESSORS

From One to Fifty Tons Capacity.



Complete Equipment for Ice-Factories, Breweries, Abattoirs, Packing Houses, Hotels, Creameries, etc.

WRITE FOR ESTIMATES.

REMINGTON MACHINE CO., Manufacturers.

WILMINGTON, DEL.

New York Office, 136 Liberty St.

BAKER & HAMILTON, SAN FRANCISCO, CAL.

Sole Pacific Coast Agents.

The Fred. W. Wolf Company,

139-143 Rees St., Foot of Dayton St., CHICAGO, U. S. A.

Ammonia Fittings and
Refrigerating Machine
Supplies.Have you seen our No. 5 Catalogue
of Fittings and Supplies?

Start in the New Year with our
superior qualities of Fittings . . .
You will never regret it.

Eastern Branch—Leonard C. Schmitt,

209 E. 94th Street, New York.

Southeastern Branch—E. E. Egan,

819 Equitable Building, Atlanta, Ga.

Southwestern Branch—E. P. Maddox,

Fort Worth, Texas.

Western Branch—Clot & Meece,

167 Fremont Street, San Francisco, Cal.

SIMPLEST AND BEST!

The "Correct"

Steam

Flue Cleaner



Perfectly Automatic and Safe. Steam Passes through Head only. Full Force of Steam Pressure Utilized at the end of Flue. Will clean 18 foot flues perfectly. Economy in Steam. Send for Catalogue with full description.

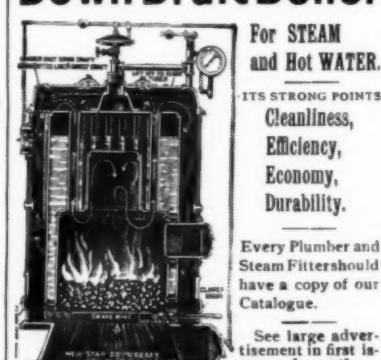
VIADUCT BRASS WORKS, 32 Centre Street, CLEVELAND, O.

ENGINES AND BOILERS.

Tanks, Stacks, Stand Pipes and Sheet-Iron Work; Shafting, Pulleys, Gearing, Boxes, Hangers, etc. Mill Castings.
Cast every day; work 180 hands.

LOMBARD IRON WORKS & SUPPLY CO.

AUGUSTA, GEORGIA.

NEW STAR
Down Draft BoilerFor STEAM
and HOT WATER.

ITS STRONG POINTS
Cleanliness,
Efficiency,
Economy,
Durability.

Every Plumber and
Steam Fitter should
have a copy of our
Catalogue.

See large advertisement in first issue each month

HARRISBURG MFG. & BOILER CO., Harrisburg, Pa.

**COILS
AND
BENDS**

THE NATIONAL
PIPE BENDING CO.

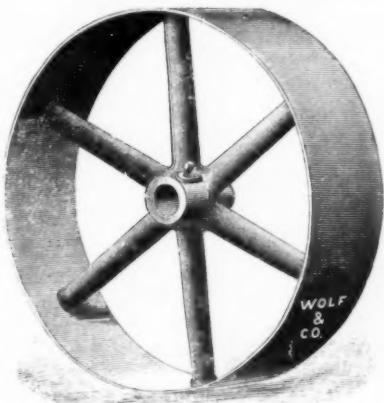
A Catalogue on Application.



97 Lloyd Street,
NEW HAVEN, CONN.

of
**IRON, BRASS
and
COPPER PIPE**

Economical Transmission of Power.



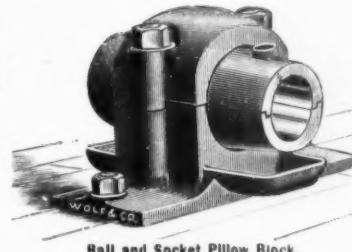
We are thoroughly equipped to fill orders of any magnitude from a Single Hanger, Pulley or Gear Wheel to an entire Carload at short notice. Our foundry has a melting capacity of 60,000 pounds a day, and in our machine shops we have installed the most improved machines.

SEND FOR CATALOGUE.

Pulleys, Gearing, Hangers, Mitre Wheels,
Link Belt Attachments, Countershafts,
Belting, Belt Tighteners, Belt Fasteners.

Contractors for Complete Power Plants. Manufacturers of Flour and Corn Mill Machinery.

THE WOLF CO., Chambersburg, Pa.



Ball and Socket Pillow Block.



THE RONEY MECHANICAL STOKER.

Ten years of constant use under the most varied and trying conditions has demonstrated that The Roney Mechanical Stoker, by supplying conditions most favorable to combustion, renders it practicable

To Burn with equal facility both anthracite and bituminous coal;
To Burn bituminous and semi-bituminous coals without smoke;
To Burn not only the best, but also the cheapest fuels, and
To do this without throwing away the resulting heat by frequent opening of fire doors.

Consequently,

It does this more efficiently and at less expense than is possible with hand firing, and
Gives more uniform results and Does Better Work at Less Cost.

THE WESTINGHOUSE MACHINE COMPANY, Pittsburg, Pa., U. S. A.

SELLING OFFICES:

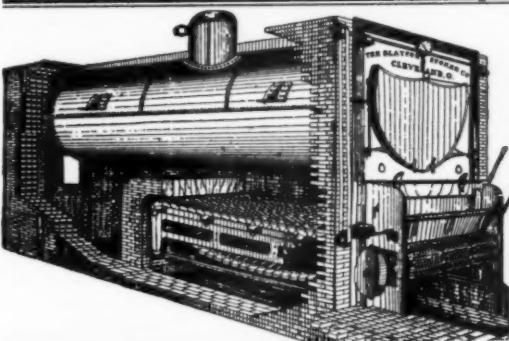
WESTINGHOUSE, CHURCH, KERR & CO.,
26 Cortlandt Street, New York.
53 State Street, Boston.
171 LaSalle Street, Chicago.
Union Trust Building, Detroit, Mich.
Westinghouse Building, Pittsburg, Pa.

M. R. MUCKLE, JR., & CO., 210 Drexel Building, Philadelphia, Pa.

D. A. TOMPKINS CO., 38 College Street, Charlotte, N. C.

PARKE & LACY CO., 21 and 23 Fremont Street, San Francisco, Cal.

And all foreign countries.



The Playford Mechanical Stoker

GUARANTEED TO

Abolish smoke, to increase boiler capacity and to save fuel.

For information, address

The Playford Stoker Co.
No. 161 Case Library Bldg.,
CLEVELAND, O.

PITTSBURGH FEED WATER HEATERS.

Made in all Styles Open and Closed Types. Complete Line.
Write for Illustrated Cat. PITTSBURGH FEED WATER HEATER & ENG. CO., Pittsburg, Pa.

R. D. WOOD & CO.

FOUNDRIES AND WORKS:

Millville, N. J., Florence, N. J., Camden, N. J.

Constructors of GAS AND WATER WORKS.

Manufacture Every Description of **CAST IRON PIPE.**

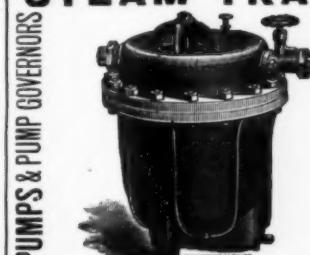
Special Castings, Cutting In Specials.

MATHEW'S SINGLE AND DOUBLE VALVE FIRE HYDRANTS.

Eddy Valves, Valve Indicator Posts.

GAS HOLDERS AND GAS MACHINERY, Hydraulic Cranes, Presses, Lifts, etc. Turbine and Water Power Pumps. Heavy Special Machinery. Sugar House Work.

THE ABC STEAM TRAPS



NON-RETURN STEAM TRAPS

Class B. Non-Return Trap has No Stuffing Boxes to stick or leak.

We manufacture Steam Traps for all duties, High and Low Pressures, returning the Condensation back into Boiler or discharging to Hot Well, Tank or Atmosphere.

Send for Catalogues A, B and C.

ALBANY STEAM TRAP CO., Albany, N. Y.

SMITH-COURTNEY CO.,

Richmond, Va.

Southern Agents for the

Improved Bates Corliss Engine

From 50 to 1000 Horse-power.

THE ENGINE for Cotton Mills and Large Factories.

Also full line of Engines, Boilers, Iron and Woodworking Machinery and Pumps. Largest stock of Railroad, Mine and Mill Supplies in the South.

The Life of an Engine

is Long or Short, according to the care bestowed upon its vital parts.

THE DETROIT SIGHT FEED LUBRICATORS

protect these vital parts by keeping them perfectly lubricated, thus preventing wear from friction. Nearly 400,000 Detroit Lubricators are in use. Our Catalogue, showing our different styles for every kind of engine, will be sent on application.

DETROIT LUBRICATOR CO., Detroit, Mich.

M. ZIER & CO. Boiler and Sheet Iron Works.

Manufacturers of Steam Boilers, Chimneys, Brechings and all kinds of Plate and Sheet Iron Work. Stand Pipes and Self-sustaining Smoke Stacks a specialty.

Estimates cheerfully furnished.

Offices and Works, S. W. cor. Pearl and Oak Streets, NEW ALBANY, IND.

Birmingham Boiler Works

Builders of Stand Pipes, Tanks, Stacks, Ore, Coal and Coke, Buggies, Laries, Lumber Trucks, Tram Cars. A large stock of new and second-hand Boilers, cheap.

WM. CRELLIN, Proprietor, Ave. A, Powell ave. and 24th st., Birmingham, Ala.



Charleston, SOUTH CAROLINA.

INVEST IN
This is a good time to start.

Room and work for

\$100,000,000

Jetties completed by U. S. Government give channel 26 feet deep to the ocean. Harbor large and deep enough to float the combined navies of the world.

PERFECT CLIMATE.
GOOD HEALTH.
PURE AKTESIAN WATER SUPPLY.
CHEAP LIVING.
CHEAP ELECTRIC POWER.
CHEAP TRANSPORTATION.

by rail and water.

Charleston has in its vicinity the most successful market farms in the United States, annual shipments from which amount to more than \$2,500,000. New manufacturing enterprises exempt from municipal taxation for five years.

NEARLY \$10,000,000

now invested in manufactures as follows:

Class.	No.	Hands	Capital invested	Annual product.
Bag factories.....	3	55	150,000	475,000
Bagging factories.....	1	325	300,000	550,000
Barrel factories.....	1	123	225,000	150,000
Basket and willow-ware factories.....	2	13	10,000	45,000
Basket & veneer wks.....	1	250	75,000	125,000
Breweries.....	1	100	187,000	300,000
Broom factories.....	1	10	2,040	6,000
Candy factories.....	10	60	180,000	335,000
Carriage wagon wks.....	6	100	50,000	100,000
Cider and vinegar.....	3	15	15,000	35,000
Cigar factories.....	9	100	60,000	260,000
Cotton & wool factories.....	1	645	600,000	700,000
Cotton & wool pick g.....	1	15	10,000	30,000
Envelope & box factory.....	4	20	10,000	25,000
Fertilizer & box factory.....	12	63	30,000	75,000
Flour and grist mills.....	8	1,460	535,000	4,265,000
Foundries & iron wks.....	3	275	150,000	200,000
Ice factories.....	2	260	250,000	300,000
Job printing and bookbinding.....	1	25	25,000	100,000
Knitting factories.....	1	90	24,000	46,000
Lead factories.....	1	10	40,000	130,000
Marble & granite wks.....	5	60	40,000	75,000
Mattress factories.....	2	35	27,000	70,000
Men's clothing.....	11	90	60,000	250,000
Oil refinery.....	1	5	30,000	325,000
Proprietary establishents.....	35	170	75,000	150,000
Rice mills.....	2	130	400,000	1,000,000
Saddlery & harness.....	9	30	60,000	150,000
Sash & blind factories.....	2	35	40,000	70,000
Saw and lumber mills.....	5	320	350,000	80,000
Ship and boat yards.....	3	20	300,000	80,000
Shoe factories.....	1	70	75,000	175,000
Soap and candle factory.....	1	45	45,000	100,000
Soda water etc.....	1	15	25,000	60,000
Underwear factories.....	3	150	20,000	60,000
Totals.....	100	150	100,000	175,000

For any information address

BUREAU OF FREIGHT
AND TRANSPORTATION,
CHARLESTON, S. C.

Don't be misled

be carried away for the moment by their persuasive powers. We only ask you to examine a Worthington Steam Pump and then look at an imitation one. Write for our catalogue, which is interesting and complete.

HENRY R. WORTHINGTON, New York.



THE LEADING HOUSE.

H. WM. DOPP & SON,
MANUFACTURERS OF

Soap Makers' and Butchers' Machinery,

462 ELLICOTT STREET, BUFFALO, N. Y., U. S. A.

Swing Foot Lever Soap Presses, Nos. 1 and 2. Combination Foot and Steam Power Soap Presses. Improved Soap Remelting Cotters, either with or without Eight Horse-power Engine attached. Seamless Steam Jacket Kettles. Steamed Jacketed Toilet Soap Kettle, with Agitator (three different styles). Steam Jacketed Rendering and Drying Vats. Steam Jacketed Vats for Confectioners. Illustrated and Descriptive Catalogue on application.

Improved Lard Dryer, Mixer and Cooler. Steam Jacketed Vacuum Pans. Hotel Kettles for Boiling and Steaming in Hospitals, Institutes, Barracks, Hotels, Asylums, &c., &c. Steam Jacketed Glue Pot Heaters. Iron Soap Cutting Frames, with Adjustable Wires. Soap Dies for Stamping and Moulding the Soap. Hand Stamps, Steam Traps, with Balanced Valve, &c.

Mention this advertisement.



JOHN T. BAILEY & CO.
Philadelphia, Pa.

Offices and Works—Water & Tasker Sts.

Manufacturers of
BAGS, ROPE and TWINE.

IMPORTERS OF

BURLAPS.

ROYAL BAG MF'G CO.

Charleston, S. C.

GEO. A. WAGNER, Pres.

W. B. FROST, Vice Pres.

GEO. LUNZ, Sec'y and Treas.

FERTILIZER SACKS, KAINIT SACKS, COTTON-SEED MEAL
SACKS, FLOUR AND GRAIN SACKS, TWINE.

IMPORTERS OF

BURLAPS.

Our galvanized sheets bear this stencil



We make only one quality and use
no other brand as a trade mark

Apollo Iron and Steel Company
Vandergrift Building
Pittsburgh

The American Balance Slide Valve
BEVEL PACKING RING
ABSOLUTELY STEAM TIGHT.
NO SPRINGS.
SELF-SUPPORTING, SELF-ADJUSTING.
15,000 Valves in use on Locomotives, Stationary
and Marine Engines.
Descriptive Catalogue Free.
AMERICAN BALANCE SLIDE VALVE CO.,
Jersey Shore, Penna.

"SAMSON" STEEL BELT HOOK.
SAMPLE SENT FREE.

For all kinds of Belts—
leather, cotton or rubber.
Will neither cut nor pull
out. FLEXIBLE, SMOOTH
and NOISELESS RUNNING.
**THE BEST FASTENER
FOR OLD BELTS.**
Samson Steel Belt Hook Co.
221 Locust Street,
Philadelphia, Pa.

Mr. Thos. A. Edison
examines a "New
Ingersoll Rock
Drill."

An order for 8 additional Drills
is the result. Making 15 in all,
for his Works at Edison, N. J.



THE "NEW INGERSOLL"

(WRITE FOR CIRCULAR)

Air Compressors—Rock Drills—Coal Cutters

The Pohle Air Lift Pump.

THE INGERSOLL-SERGEANT DRILL CO.

HAVEMEYER BUILDING, NEW YORK.

Manufacturers
CABINET AND BUILDERS' HARDWARE
and Specialties in Iron.

Wrightsville Hardware Co.

WRIGHTSVILLE, PA.

SUCCESSIONS TO
SHEPARD HARDWARE CO., Buffalo, N. Y.
in the following departments
of the business:

Blind Hinges, Gate Hinges, Gate Latches and Frame Pulleys



VALDOSTA FOUNDRY & MACHINE CO., VALDOSTA, GA.
Manufacturers of Boilers, Saw Mills, &c.
We Buy, Sell and Trade New and Second-hand Machinery.

MANUFACTURERS' RECORD.

A WEEKLY SOUTHERN INDUSTRIAL, RAILROAD AND FINANCIAL NEWSPAPER.

VOL. XXXIII. NO. 9.
WEEKLY.

BALTIMORE, MARCH 25, 1898.

}\$4.00 A YEAR.
{ SINGLE COPIES, 10 CENTS

Manufacturers' Record.

PUBLISHED EVERY FRIDAY BY THE
Manufacturers' Record Publishing Co.
RICHARD H. EDMONDS, President.
OFFICE: MANUFACTURERS' RECORD BUILDING,
BALTIMORE.

RICHARD H. EDMONDS,
Editor and General Manager.

THOMAS P. GRASTY,
General Staff Correspondent.

NEW ENGLAND OFFICE:
Room 14, 299 Devonshire Street, Boston, Mass.
S. I. CARPENTER, Manager.

Special Traveling Representatives:
RICHARD S. EVANS,
I. S. FIELD.

SUBSCRIPTION, - - - - - \$4.00 a Year.
TO FOREIGN COUNTRIES, - - - - - \$6, 6d. a Year.

BALTIMORE, MARCH 25, 1898.

The anniversary edition of the Birmingham News of March 14 was a credit to Southern journalism. Its forty pages, filled with news and advertising business, were typical of the enterprise and progress of Birmingham and Alabama.

Governor Culberson, of Texas, has fixed April 1 for the beginning of quarantine on the State's Gulf coast and Rio Grande border. Simultaneously with the publication of his proclamation, the Galveston health officers have undertaken to place that city in a sanitary condition. That is a plan which should be adopted by every city. A clean city is practically independent of quarantine. Leave no food for disease germs and they must die.

A cotton factory is worth more to a town than a congressman. * * * One good industrial item is worth more than a column of political news or views.

In two sentences the Jackson (Miss.) correspondent of the New Orleans Picayune condenses a volume of truth. The sentiments should be kept at the head of every editorial page in the South and followed literally. To these might be added a third: "A politician may be a detriment to a town; a cotton mill can be only a benefit."

Could Not Happen South.

Unique and unequalled among American newspapers stands the New York Evening Post—unique as the sole paper among the 15,000 or 20,000 published in this country that has sunk all honor, all patriotism, and unequalled in the depths of degradation in which it has wallowed since the first announcement of the disaster to the Maine. Not content with the persistent effort that it has made to prove that the destruction of the Maine was purely accidental, and to decry any possible effort which this country might make to relieve the suffering in Cuba or to defend its own honor, if need be, the Post has now sought to belittle the effort that is being made to build a monument to those who lost their lives when the Maine went down

in the harbor of Havana. Probably no higher motive inspired the Post than hatred of the New York Journal, which first suggested this monument, and while the Manufacturers' Record has not by any means always admired the Journal, it would a thousand times prefer to stand before the world responsible for the Journal's Cuban work than to be loaded with the shame of the Post's malicious, degrading course—a disgrace to American journalism and to America itself. Commenting on this movement to build a monument, the Post says:

We ought always to consider what posterity will think of the monuments we erect and what posterity will do to them. We can imagine a future generation coming upon this monument, wherever it may be erected, and asking: "Why cumbereth it the ground?" The answer will be that certain sailors of the United States Navy met with an accident, to wit, an explosion, on their ship, and that since it occurred at a time when there was a good deal of talk about war, and a pretty lively sale of extras, and since the accident was an explosion and not a collision or a hurricane, it was deemed advisable to erect a monument to their memory. "Very innocent intention," posterity would say in such a case, "but indicative rather of emotion than of sound judgment," and thereupon, if it happened to be in a place wanted for some other use, it would be thrown down without punctuation.

Could human ingenuity with malice born of the lower world perpetrate a more diabolical attempt to discredit our dead? In the contemplation of such a disgrace to human nature, the Manufacturers' Record has at least one satisfaction, and that is that nowhere in all the South could such a journal as the New York Evening Post live. May the wise dispensations of Providence forever save our fair Southern land from such a concentration of hypocrisy and degradation as is found in the New York Evening Post.

Manufactures and Commerce.

The argument for a union of commerce and manufactures in the South, long time made by the Manufacturers' Record, is now ably seconded by the Philadelphia Record. Encouraging the efforts to enhance the position of Southern ports, it says:

We are of the opinion that the chief obstacle to the large growth of any Southern port as a foreign trade center is the lack of manufacturing facilities in the South. These must be developed before there can be any considerable interchange of products with the great grain-producing States of the West, such as would supply profitable tonnage both ways to the transportation lines. If the South could supply the West with agricultural implements and other manufactured supplies, there is little doubt that a large proportion of Western grain and trade would be diverted to the Gulf ports, which are the natural outlets for the products of a large section of the Mississippi valley.

A large proportion of the Western grain trade has been already diverted to Southern ports by the enterprise of railroads seeking the shortest routes from the grain fields to the ocean. But it can be made greater, and to it may be added exports of goods to country

naturally tributary in commerce to Southern ports if the latter put forth their utmost endeavors to insure full trains both ways on the railroads. The port that receives the greater portion of vessels in ballast may thrive for a time, but there is a possibility at any time of a cessation of even such vessels' arrival. So the railroad company that hauls only empty cars from the port may reach a point where it will be unprofitable to haul full cars to it. The happy combination of full cars meeting full vessels may be had in the development of the manufacturing resources of the South.

The intention to make this combination is plainly apparent. Faith in its fulfillment is demonstrated in the work which great railroads have already done to strengthen themselves at the ports and the inclination of steamship companies to extend their operations there.

Lessons from New England.

Mr. E. J. French, treasurer of the Weetamoe Mills, Fall River, Mass., takes a gloomy view of cotton-mill building in the South. In a letter to the Manufacturers' Record he says:

The interest of capital at the North is not to seek new fields in the South, but to take care of our mills in the North, where our money is invested. We propose to still manufacture in the North, and in time to see the collapse of many of the mills that are contemplating building, after they have run awhile and find out what a little experience in mill running costs. It would seem just now that there could only be one side to the Southern mill building, but take a little time and see how it works. Already we find mill after mill changing hands, with the first list of stockholders wiped out. We have seen it before, we shall see it again. We have in the North paid for it in the past. We know what it will be in the South in a few years. The Northern capitalist can't be taught anything from what Southerners know of cotton manufacturing. They have a knowledge in that line that has not reached the South as yet and will be some time in finding out. You know most of us everywhere must have the experience before we will believe what others tell us, and it will be so in the mill building in the South. After they have done what they want to in this line, and lost money, they will know that the advice given was not from prejudice, but from actual knowledge after sad experience. I hope the best for my Southern brother, but I find most people with money prefer to keep it at home here in the North, where they know what is in store for them.

In this letter Mr. French seems to overlook one lesson that Southern mills have taught Northern ones, and that is the advantage which is derived from up-to-date machinery. This advantage has been appreciatively recognized by men interested in textile industries in the North. We hardly believe, too, that Southern mills are suffering greatly from overcapitalization, and we certainly know that they have not been handicapped by the labor problems which now confront New England. The experience of New England in these particulars has been of inestimable benefit to the South, and ought surely to guarantee it against a duplication of the evils which have

fallen upon Northern capital at home, and thereby to induce that capital to increase its tendency to find a safer and more remunerative field for investment—the South.

The South's Population.

In the Manufacturers' Record this week is a study by Edward Ingle of the movement of population of this country, indicating the changes now going on in the South. From a comparison of the census figures for 1880 and 1890, presented in this form for the first time, the deduction is made that the figures for 1900 will show that the white native population of the South has become more permanent in that section and has been largely enforced by whites from other parts of the country; that the colored population, particularly on the northern and western border, has been drifting from the South, instead of toward the Gulf coast, and that the foreign element, while slowly increasing by direct immigration, contains many men who have assimilated the American spirit before they have finally settled in the South. In conclusion Mr. Ingle says:

As the pioneer era of migration in America has reached its last stage, a reflex action has begun which will be to the great advantage of the South, where new conditions have developed. From a section dominated by agriculture of an extensive character it is becoming one in which the small farm will increase in importance every year. From a producer and primary manipulator of raw material it has grown to be a manufacturer of various grades of cotton, of lumber, iron and steel under a happy combination in close neighborhood of spindles and cotton bolls, natural power, fuel and ore, and is exporting not only its own products, but those of the agricultural Northwest and West. Steamships running direct from Southern ports to Europe, and great lines of railroads extending from the Potomac, Ohio and Missouri to the Gulf and South Atlantic coasts, are fulfilling the broad aspirations of Southern men of fifty and sixty years ago. The resultant will be that the South will be the better and better able to support its own growing population, as well as the thrifty and enterprising who come from other parts of the country.

For Tennessee's Welfare.

The campaign for the industrial development of Tennessee is being pushed vigorously. Mr. Herman Justi, who was so efficient as the head of the bureau of publicity and promotion of the Nashville Exposition, is one of the active campaigners. In an address at Memphis he pointed out that Eastern enterprises that are coming South are going to the Carolinas, Georgia and Alabama, instead of Tennessee, and said:

These manufacturing enterprises are seeking other fields for establishment because the laws of the Eastern States are of a menacing character to them, and naturally enough they will not come to this State, which has laws similar to those from the bad effects of which they are seeking to escape.

The tax laws of Tennessee, in Mr. Justi's opinion, seem to offer the chief objections, because they are so frequently changed, and consequently induce conflicting constructions. The

movement in the State, which ought to be successful, is not to secure exemptions, but merely to ensure equality in assessments.

The men who are working to that end are inspired solely by an earnest desire for the advancement of all the interests of a great State. They should be encouraged by the united sentiment of all classes, for in the healthy development of all of Tennessee's resources are the greater comfort and prosperity of every Tennessean.

Paternal Politics.

The Paducah (Ky.) Sun, in commenting upon the position taken by the Manufacturers' Record in opposition to "government by commission," says:

The Manufacturers' Record, which has done more in advancing industrial development in the South and uniting all the people of the nation into one great common brotherhood than any other publication since the surrender of Appomattox, has been publishing some timely and well-considered articles opposing the giving of rate-making powers to the Interstate commerce commission. * * * It is impossible to imagine how any commission can intelligently make the rates for the traffic of a country so large as ours and with such widely different interests and conditions as we have in different sections. Take fifty of the best traffic men of the United States, put them on this commission, and, if honest men, they will within three months be forced to confess their absolute inability to handle the question—for it is too big a job. The wonderful development of the country in the last fifty years has been largely the efforts of independent lines of railroads to build up the sections served by them, regardless of the interest of any other part of the country, and the people will find, if the attempt should ever be made, that enforced departure from this system can but bring ruin and disaster to their best interests. Tariff rates ground out by the awkward machinery of an inexperienced commission would bring about this departure and throw the trade of the country into chaos. We are suffering now from too much paternal government, both State and national, and any extension of it will militate against the interests of the people. To put the control of the business of the railroads of the country into the hands of men not interested in them, and whose acts could not be reviewed by the courts, would be the most glaring instance of paternalism possible to conceive.

Dairying in the South.

In pursuit of its plan of presenting each month a series of special articles upon particular topics of value to the agriculturists of the South, the Southern Farm Magazine devotes much of the space in its April number to dairying interests. Dr. Charles W. Dabney treats, from a statistical standpoint largely, of "The Cow on the Southern Farm," in which he points out the room for improvement in methods.

Dr. J. B. Killebrew discusses in a broad and comprehensive manner "Dairy Husbandry in the South," full of the results of many years' careful study. Mr. Paul F. Kefauver's topic is "Butter Dairying in Tennessee," which has ceased to be an experiment.

The newcomer and the man who is contemplating dairying as a new undertaking will find much practical advice in the article by Mr. George F. Weston on "Starting a Southern Dairy." Mr. Weston is superintendent of the great Biltmore Farms, in North Carolina, and he writes from the point of experience and accurate knowledge.

Another feature of great interest is "The Round Bale; a Conservative Presentation of Some of Its Advantages from the Point of View of the Planter," by Col. John C. Calhoun.

The regular departments of the magazine are, as usual, full of timely material.

The Southern Farm Magazine is published by the Manufacturers' Record

Publishing Co., Baltimore, Md. One dollar a year.

HISTORY REPEATS ITSELF.

Georgia Regaining Its Relative Position of Forty Years Ago.

[Special Cor. Manufacturers' Record.]

Augusta, Ga., March 19.

What promises to become a recurrence of the gold fever is setting in in this vicinity. There are now a number of capitalists from Philadelphia and Chicago quietly inspecting the mines and mineral properties in which this region abounds, also several inventors of new processes for separating gold from the accompanying metals. There are rumors, too, of some English parties having prospected hereabouts lately.

The opportunities for successful enterprises of this nature are both numerous and inviting in Georgia, especially so in this immediate vicinity. The list of minerals found in paying quantities within a radius of 100 miles of this city includes not only gold, but copper, iron, marble, granite, red and yellow ochre and kaolin. In the Horse Creek district there are half a dozen kaolin mines in successful operation. Besides paying good dividends to their owners, they give employment to a considerable number of persons. They find an outlet for their product for the most part among the paper makers in the East and in Illinois. Kaolin is also used for putting a finish on the products of bat-tling mills.

Near this city are several fine deposits of yellow and red ochre which might be profitably worked, while at Union Point and on Little river there are extensive copper mines that only need developing to become handsomely-paying properties.

Georgia is prepared to furnish all the granite required to pave all the cities in the Union, and at the same time furnish the stone to build Uncle Sam's fortifications and public buildings besides. The supply is practically unlimited. The granite formation extends almost across the middle portion of the State, and at some points granite of the finest quality is found.

In marble, as in granite, Georgia is the theater of vast operations. In Pickens county there are the most extensive marble works in the world, which are now shipping the most enduring, the most ornamental and the lowest-priced marbles, both for building and embellishing purposes, to be found on the globe. Many of the handsomest buildings which are destined to adorn the great cities of the country are being built of Georgia marble. Perhaps the most conspicuous example of this is the capitol of Rhode Island, at Providence, a magnificent and ornate structure, which will cost when completed \$3,000,000.

It may not be generally known that up to 1849 Georgia ranked first among the gold-producing States. There was a great rush for mineral properties, and the State was settled with wonderful rapidity and a great deal of capital found profitable investment here. All the mines in the territory tributary to Augusta were worked to the full capacity, and I am prepared to prove by documentary evidence that they were excellent dividend-payers.

Georgia at that time was making progress at a pace that had never been equalled by any State or nation. She was practically out of debt, and with the income from her public property would soon have presented the unique spectacle of a populous, powerful and wealthy State with no use for a tax-gatherer. In 1856 the aggregate value of her property was \$495,516,224, and in 1860 \$672,322,777, showing the enormous increase of

\$176,806,553. Thus it stands out clear and incontrovertible and a fact that cannot be too strongly emphasized that Georgia's growth reached the enormous figure of 176 millions in forty-eight months.

But the legacy of war was the destruction of that phenomenal prosperity. The mines were dismantled and their machinery utilized by the Confederate government in the prosecution of the war. Subsequently the South had to adapt herself to new and strange conditions, which she has done as best she could. But her gold, iron, coal, marble, granite and water-power are imperishable, and the opportunities for enterprise within her borders are more inviting now, since the advent of railroads, electricity and improved machinery, than ever before.

There are more than thirty gold mines now in operation in this State, scattered over a gold-bearing area of great extent. In a few instances hydraulic machinery is employed. In many instances it is believed that enough by-products remain in the dirt, after treating it, to pay for going over it a second time. In some instances the operations have been greatly hampered by subterranean streams and lack of pumping machinery of sufficient capacity to cope with them. The proximity of the latter to water-power will obviate this trouble by the aid of electrical transmission.

With Georgia shipping her gold to London and iron to Pittsburg, marble to Providence and lumber to Brazil, granite to St. Paul, peaches to California, coals to New Castle, cotton to Barcelona and cotton goods the world over, it may be well for industrial New England to consider the advisability of forsaking her snowbanks and rockpiles for the land of sunshine, health and magnolias. The cycles are lineal descendants of others; history has already begun to repeat itself.

HENRY P. MOORE.

Industrial News from Birmingham.

[Special Cor. Manufacturers' Record.]

Birmingham, Ala., March 22.

The market was more active the past week than has been reported of late. The agreement to maintain prices by certain interests is maintained, and there is no complaint of its violation, nor any suspicion of eluding it. The prices fixed are for delivery and not for f. o. b. at selling point. This may make the price on, say No. 2 foundry f. o. b. there, \$7.25 for some districts, while for other districts it may cost less. This difference is occasioned by competition. The long and the short of it is, that the price depends on circumstances and competition. Whenever the furnaces desire to market their iron prices are made that will sell it; and where they offer in antagonism to competition the other fellow sees little and often no profit at all in his sales. There are some keen, shrewd, active, well-informed and aggressive interests not in the agreement which can demoralize prices as long as they stay in the market. Rumors are current of a shading of prices by some of them, but to what extent themselves only know.

The export trade showed an improvement the past week, the sales by one interest being nearly equal to the average of late for all. Particulars of these sales concerning prices and destination are carefully guarded secrets. The new by-product plant has progressed to the signing of the contract by the Semet-Solvay Company for its erection. The contractors are credited with being largely interested in the plant. It will be pushed to rapid completion. The new Ensley corporation is pushing the advancement of the town by the installation of substantial enterprises, and there is as much

activity there in the building line as anywhere around here.

There are rumors afloat again concerning the new steel plant, but those most interested in it have least to say of it. "Wars and rumors of war" are a potent factor in causing the withdrawal of money and locking it up safe from investments; and it may be that the enterprise will be sidetracked until "the clouds roll by." The coal interests are getting in shape to answer an anticipated government demand for coal, but beyond representation as to output and shipping facilities nothing has been done.

The rolling mill is yet in full eruption, with all departments in full blast and finding a ready market for their output. The minor industries all continue full of work, with every indication of an active summer.

J. M. K.

For a Sugar Mill.

[Special Cor. Manufacturers' Record.]

Brazoria, Texas, March 19.

Arrangements are about completed to put in a sugar mill and refinery at Lowood, about eight miles below here, on the river. The promoters have \$80,000 raised and will complete the organization by April 15.

North Carolina Industries.

The report for 1897 of State Labor Commissioner J. V. Hamrick, of North Carolina, shows that the water-power of the State is 3,500,000 horse-power. There are 217 cotton mills, with 24,517 looms and 1,044,385 spindles; fifteen woolen mills, with 239 looms and 5394 spindles; eighty-six roller flour mills, 123 tanneries, thirty-five furniture factories. There were manufactured 27,000,000 pounds of plug, 317,000 pounds of smoking tobacco, 4,512,000 cigars and 337,000,000 cigarettes. Various minerals are also discussed in the report, beside agricultural products and other interesting subjects.

A handbook, which in its general appearance is a first-rate advertisement, has been issued by the Atlanta Chamber of Commerce and the city council to set forth the commercial, manufacturing and residential conditions of the Gate City. The authoritative text, statistical and descriptive, is illustrated by more than 100 half-tone engravings. The book, which is very attractive, will be mailed free of cost upon application to Mr. V. V. Bullock, secretary of the Atlanta Chamber of Commerce.

The Birmingham Evening News, of Birmingham, Ala., with its usual enterprise, celebrated its tenth anniversary on the 14th inst. by issuing a 40-page edition. The publication is especially deserving of attention, containing a complete and exhaustive record of the commerce and industries of the city, and is invaluable as a reference to the capitalist and investor.

Figures compiled by the secretary of the Birmingham Commercial Club show that the number of names on the payrolls of industrial companies and railroads in and near Birmingham has increased from 9000 to 12,000 in a year, and the wages from \$480,000 to \$640,000 monthly.

The New York Commercial has issued a special Caracas edition, in which much space is devoted to the opening of the warehouse at Caracas under the auspices of the National Association of Manufacturers, as a means of extending our South American trade.

There is talk of a commercial convention at Louisville, Ky., in May.

MOVEMENT OF THE SOUTH'S POPULATION 1880-1890.

A Forecast of the Manifestations of the Present Decade.

By Edward Ingle.

In the publication a short while ago of the last volume of the census of 1890, statistics have become available for a study of the shifting of population in this country during the preceding decade. Several years must elapse before the official figures of the same kind for 1900 will be made known. But in view of the steady stream of migration to the South from other sections during the past four or five years, evidences of which do much abound, an analysis of the data of 1880 and 1890 with special reference to the South may be of interest as a forecast of conditions in 1900.*

It is believed these will be, broadly stated:

1. The white native population of the South more permanent in their section, enforced by whites native of other sections.
2. The colored population drifting largely to the cities of the North, and in less degree toward the region adjacent to the northern boundary of Texas and the western boundary of Arkansas and Missouri.
3. The maintenance of the native Americanism of the South, the foreign-born population being increased, with the exception, perhaps, of those coming from Cuba, by those who have moved from the West and Northwest, rather than by immigrants fresh from foreign parts.

First, as to the native white population. Its movement in the mass is seen in a comparison of tables A and B:

TABLE A.—NATIVE WHITE POPULATION 1880.

	In Each State.	Natives in State of Nativity.	Other Natives in the State.	Natives of the United States.	Natives Beyond the United States.
Delaware	11,720	87,351	22,763	125,072	37,115
Maryland	642,165	505,942	76,223	714,610	148,608
District of Columbia	101,026	55,927	45,000	72,650	16,723
Virginia	866,248	816,496	49,752	1,273,856	457,390
West Virginia	574,300	381,720	192,589	421,361	39,641
North Carolina	863,530	828,641	34,900	1,028,756	200,115
South Carolina	383,651	363,576	20,075	500,994	137,418
Georgia	806,573	717,276	89,297	933,061	215,785
Florida	134,902	84,678	50,224	98,655	13,977
Kentucky	1,317,725	1,149,494	168,231	1,527,305	377,811
Tennessee	1,122,236	975,119	147,117	1,367,753	392,634
Alabama	652,664	506,917	145,747	708,904	201,987
Mississippi	470,403	353,247	117,156	473,253	120,006
Louisiana	402,175	341,974	60,203	399,988	58,014
Texas	1,083,056	591,161	492,405	623,787	32,626
Arkansas	581,556	512,739	268,617	583,622	70,883
Missouri	1,811,467	1,156,746	654,721	1,429,576	272,830
Total	11,924,828	9,286,610	2,655,218	12,683,203	2,793,593
Elsewhere	24,918,463	19,020,471	5,897,392	24,760,088	5,739,617
Total United States	36,843,291	28,310,081	8,533,210	36,843,201	8,533,210

TABLE B.—NATIVE WHITE POPULATION 1890.

	In Each State.	Natives in State of Nativity.	Other Natives in the State.	Natives of the United States.	Natives Beyond the United States.
Delaware	126,970	97,491	20,479	135,503	38,012
Maryland	632,706	650,454	82,252	809,745	150,280
District of Columbia	126,178	70,943	65,235	90,001	19,058
Virginia	1,001,933	940,520	61,413	1,334,985	304,465
West Virginia	711,225	551,684	159,541	622,063	70,379
North Carolina	1,651,720	1,015,829	35,891	1,192,833	177,004
South Carolina	455,865	435,594	20,271	551,199	115,605
Georgia	966,465	873,234	93,231	1,104,904	231,670
Florida	206,771	132,098	74,763	147,729	15,721
Kentucky	1,531,222	1,362,895	168,386	1,772,308	404,472
Tennessee	1,316,738	1,153,739	162,969	1,563,992	410,253
Alabama	819,114	660,848	158,296	875,362	214,514
Mississippi	537,127	440,670	96,457	583,004	142,334
Louisiana	509,555	444,230	65,325	510,305	66,075
Texas	1,594,466	980,308	604,558	1,053,089	63,181
Arkansas	804,658	477,414	327,244	506,700	89,286
Missouri	2,294,176	1,548,624	745,549	1,934,102	385,475
Total	14,796,889	11,846,029	2,950,860	14,847,822	3,001,793
Elsewhere	31,005,134	23,677,224	7,287,919	31,014,201	7,336,977
Total United States	45,862,023	35,523,253	10,338,770	45,862,023	10,338,770

Between 1880 and 1890 the native white population of the country increased 9,018,732, or 24.47 per cent.; of the South 2,872,061, or 24.08; of elsewhere 6,146,671, or 24.66 per cent.

The increase in this population was below the average in the South in all the States except Florida, which advanced 53 per cent., Arkansas 38, Texas 37, Missouri 32, Louisiana 26 and Alabama 25 per cent., and the increases in other States were Delaware 23 per cent., West Virginia 23, North Carolina 21, Georgia 19, South Carolina 18, Tennessee 17, Kentucky 17, Virginia 15, Mississippi 14 and Maryland 14. The increase in the six States above the average was 1,552,718, more than 50 per cent. of that in the whole South.

Viewed alone, these figures might be discouraging. But as far as this class of population is concerned, the South east of the Mississippi had the advantage of the country elsewhere east of that river. The increase in the native white population in that part of the South, 1,557,602, was 54 per cent. of that in the whole South. The increase in the rest of the country east of the Mississippi was 3,369,771, or 32 per cent. of that elsewhere. In the North the total increase was but 16 per cent. The native white population fell off 1 per cent. in Maine and 1 per cent. in Vermont, and increased 14 per cent. in New York, 16 per cent. in Massachusetts, 16 per cent. in Connecticut, 1 per cent. in New Hampshire, 11 per cent. in Indiana, 16 per cent. in Ohio, 19 per cent. in Illinois and 20 per cent. in Iowa, all below the average rate of increase elsewhere.

*In this paper fractions of decimals have been used only when differences were so slight as to be made apparent in no other way. The word "South" is used to designate the area in which slavery was a recognized institution in 1860. The word "elsewhere" is applied for brevity to the whole country outside the South, and its population are included also those born abroad, born at sea and not designated by birthplace. The "North" is New England, New York, New Jersey and Pennsylvania; the "West" Ohio, Indiana, Illinois, Michigan, Missouri, Minnesota, Iowa, the two Dakotas, Nebraska and Kansas, and the "Northwest and Southwest" Oklahoma, Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Idaho, Washington, Oregon and California. In the "colored" population are included persons of negro descent, Chinese, Japanese and civilized Indians. "Native whites" are those born in the United States; "white natives," those born in section or State under consideration. Except where expressly noted otherwise, the figures of the census have been followed as authoritative. The belief that many foreigners were included among the native-born would tend to the benefit of the South.

South at an Advantage.

As the tables are further examined the relatively increasing advantages of the South are more apparent. The percentage of the increase of whites living in the State of their nativity in the South was beyond that of the increase of the total there, while it decreased elsewhere. The proportion of white natives of the South in the South to its total native white population advanced from 78 per cent. to 80 per cent., while it was slightly reduced elsewhere, and the reduction of the percentage of whites beyond the State of their nativity was proportionately greater in the South than elsewhere.

The number of whites in the State of their nativity increased in every Southern State, but was reduced in Maine, New Hampshire and Vermont, while the number of immigrants from other States fell off only 33,048 in West Virginia and 20,699 in Mississippi, a total of 53,747 in the South, though the reduction elsewhere was Vermont 743, Ohio 1711, Indiana 49,573, Illinois 2970, Michigan 18,824, Wisconsin 2928, Iowa 37,874 and Nevada 7437, a total of 122,060.

The percentage of white natives of the South living beyond the States of their birth diminished from 23 to 20, while that elsewhere increased from 23.18 to 23.65. This percentage increased from 9 to 11 in West Virginia, and from 5.23 to 5.99 in Texas. In every other Southern State the emigration had been reduced in various degrees, ranging from 7 per cent. in Virginia to .7 per cent. in Mississippi. There were actually 62,795 fewer Virginians, 23,111 North Carolinians and 21,813 South Carolinians away from home in 1890 than in 1880.

The great majority of migrant Southerners have preferred to remain in the South, as tables C and D demonstrate:

TABLE C.—WHITE NATIVE SOUTHERNERS WHO HAD MIGRATED 1880.

Native of	South.	North.	West.	Southwest.
Delaware	10,401	18,149	7,587	987
Maryland	48,508	40,352	59,047	5,801
District of Columbia	8,226	4,626	2,768	1,163
Virginia	290,029	19,665	125,900	12,766
West Virginia	8,980	5,235	24,300	1,126
North Carolina	154,556	2,821	38,641	4,097
South Carolina	126,066	3,799	5,400	1,533
Georgia	204,410	3,375	5,071	2,920
Florida	11,894	1,135	608	340
Kentucky	170,632	4,422	184,685	18,072
Tennessee	315,164	2,107	62,986	12,377
Alabama	193,152	1,330	4,894	2,611
Mississippi	111,679	1,135	4,510	2,682
Louisiana	45,362	3,698	5,397	3,557
Texas	21,441	1,045	4,765	5,375
Arkansas	58,886	310	6,054	5,633
Missouri	40,530	4,592	132,348	95,360
Total	1,829,576	117,787	609,861	176,393

TABLE D.—WHITE NATIVE SOUTHERNERS WHO HAD MIGRATED 1890.

Native of	South.	North.	West.	Southwest.
Delaware	10,426	19,723	6,355	1,508
Maryland	57,531	46,029	48,341	7,388
District of Columbia	8,056	5,554	3,559	1,889
Virginia	246,788	23,035	106,096	18,546
West Virginia	17,834	10,099	37,775	4,671
North Carolina	137,133	3,751	28,871	4,249
South Carolina	105,321	3,837	4,351	2,096
Georgia	216,495	3,870	5,846	5,439
Florida	12,551	1,583	922	665
Kentucky	192,857	5,891	181,823	28,901
Tennessee	328,822	2,930	57,228	21,273
Alabama	262,918	1,607	5,381	4,548
Mississippi	131,310	1,135	5,202	4,627
Louisiana	50,628	3,824	6,054	5,569
Texas	30,317	1,947	7,116	23,801
Arkansas	70,349	541	7,214	11,182
Missouri	94,478	6,490	180,943	103,564
Total	1,913,814	141,906	609,137	252,036

In 1880, of the 2,793,593 white native Southerners of the dispersion, 1,829,576, or 65.5 per cent., were in the South; 117,787, or 4.3 per cent., in the North; 23.9 per cent. in the West, and 6.3 per cent. in the Southwest and Northwest. This expatriation increased in ten years 208,209, or 7.4 per cent., among Southerners, and 1,597,360, or 27.1 per cent., among persons elsewhere. The increase of Southerners was 84,238 in the South, 76,507 in the Southwest and Northwest, 24,119 in the North and 23,276 in the West. This reduced the percentage of Southern emigrants to 63.9 in the South and 23.1 in the West, and increased it to 4.7 in the North and 8.4 in the Southwest and Northwest. The South lost of its migrants within its territory 52,241 Virginians, 21,345 South Carolinians and 17,423 North Carolinians, a total of 91,000. The West lost of Southern migrants 19,804 Virginians, 9770 North Carolinians, 5758 Tennesseans, 5606 Marylanders, 2862 Kentuckians, 1232 Delawareans and 1049 South Carolinians.

OF NOMADIC CHARACTER.

Whither these disappeared, allowing also for deaths, may be realized in the fact that the greatest gains of Southerners in the Southwest and Northwest were 18,426 Texans, 10,829 Kentuckians, 8896 Tennesseans, 8204 Missourians, 5780 Virginians and 5549 Arkansans, while those of the North were 5677 Marylanders, 4864 West Virginians and 3370 Virginians. These gains were, without doubt, largely representative of the distinctively nomadic types of Southern whites, who, like the same class elsewhere, are constantly pushing forward into newly-developed territory or into fresh fields of action.

In the meantime, however, accompanying the tendency to permanency of position of the white native population east of the Mississippi, more strongly marked south of the 40th parallel than north of it, had been a readjustment of the lines of movement of

per cent., more born elsewhere in the South in 1890 than in 1880, the actual balance against the South diminishing from 158,375 to 50,933.

Unique Facts About Texas.

The changes in the youngest State of the South, with the exception of West Virginia, are, perhaps, an index of what the South as a whole is to be in view of existing tendencies.

Of all the Southern States, Texas presents the greatest number of interesting statistical points. In 1890 five Southern States had more native white immigrants from other States than there were emigrants from their respective confines. Texas led with a balance of 541,377. That is a striking evidence of the character of its population. Of the total 152,956, or 7 per cent., were foreign, 448,101, or 22 per cent., were colored, and 1,594,466, or 71 per cent., were native whites. Of these, 989,908, or 62.08 per cent., were born in Texas; 504,723, or 31.66 per cent., in other Southern States; 57,519, or 3.60 per cent., in the West; 20,108, or 1.26 per cent., in the North; 4449, or .28 per cent., in the Southwest and Northwest, and 17,739, or 1.12 per cent., were not designated, etc. Less than 6 per cent. of natives of Texas were beyond its borders. One of the most interesting facts is that 504,723, or nearly 27 per cent., of migrants from other Southern States had found their way to Texas, the latter giving them but 30,317 in exchange. The contributions by States, showing the trend of such migration, was as follows: Tennessee 97,348, Alabama 83,144, Mississippi 59,982, Georgia 54,597, Missouri 43,814, Arkansas 43,018, Kentucky 40,600, Louisiana 28,387, North Carolina 17,325, Virginia 15,674, South Carolina 14,594, Florida 2710, Maryland 1915, West Virginia 1141, District of Columbia 245, and Delaware 220.

There is a balancing of different classes of population in Texas that promises to make it the distinctively characteristic American State of the future, and it seems likely that other Southern States will approach that type as they succeed from the Potomac to the Sabine.

The Colored Population.

This result implies a modification of the colored population. Because of the small proportion of colored persons, about 8 per cent. of the whole in 1890, outside of the South it is not possible to present many marked points for comparison of this portion of the population in the different sections. The task is complicated, moreover, by the fact of the undue percentage of increase between 1880 and 1890 of the persons whose place of birth is not designated by reason of no enumeration of that class in 1880. Notwithstanding that, certain broad facts are revealed by the following table:

TABLE F.—NATIVE COLORED POPULATION'S ALIGNMENT.						
	In State	Other	Natives in	Beyond State		
	of Nativity.	Nativity.	In U. S.	of Nativity.		
1880.	Total, 6,100,910	5,290,237	839,773	6,207,043	1,007,806	
	South, 352,539	312,416	220,123	365,506	52,080	
	Total, 6,632,549	5,572,653	1,059,896	6,632,549	1,059,896	
1890.	South, 6,888,799	6,023,428	805,371	7,055,894	1,032,466	
	Elsewhere, 621,881	324,930	296,951	454,786	129,876	
	Total, 7,510,680	6,348,358	1,162,322	7,510,680	1,162,322	

The increase in the whole country was from 6,632,549 to 7,510,680, or 13 per cent., in the South 12 per cent., elsewhere 16.7 per cent., the West showing the slightest gain, 15 per cent., outside the South. There was an increase of 14 per cent. in the South and of 4 per cent. elsewhere of those living in the State of their nativity. This increase in the South above the average rate of the total in that section, was made against an actual loss in that class of 6393 in Kentucky, 2115 in Virginia, 524 in Maryland and 280 in Delaware, while Missouri gained only 2034 upon 111,895, and West Virginia only 2642 on 15,547. Kentucky's colored population was 2391 less in 1890 than in 1880, and the State was short 2088 more in the rest of the country, while Delaware had only 549 more native colored in the country, and Virginia, whose colored population had increased but 4052, had a shortage of 12,502 native born in the whole country.

Only Slight Gains.

The total colored population was reduced 1 per cent. in Kentucky, and was far below the average increase in six other Southern States, the rates being Virginia .06, Maryland .02, Missouri .03, North Carolina .05, Tennessee .06, and Delaware .07. South Carolina and Alabama each gained 13 per cent., Mississippi 14, Louisiana 15, Georgia 18, Florida 23, Texas 24, the District of Columbia 27, West Virginia 28, and Arkansas 47 per cent. These wide differences of percentages must be regarded merely as symptoms rather than potent facts of wide divergence. Thus the .06 per cent. of Virginia's increase represents 4052 persons, while the 6 per cent. of Tennessee represents 27,330, and the 7 per cent. of Delaware 1942. So, in the case of other States, Louisiana's .15 equals 75,662, Alabama's .13 equals 79,019, Arkansas's .47 represents but 12,664 more than South Carolina's .13 and 35,270 less than Georgia's .18, while West Virginia's .28 is but 6803 and Texas's .24 is 94,624. An additional fact in explanation of these percentages is that the number of colored inhabitants born in other States was reduced 3582 in South Carolina, 20,323 in Alabama, 20,522 in Mississippi, 16,645 in Louisiana and 5167 in Texas.

A similar falling off was noticeable in other sections. The total colored population was reduced 565, or 18 per cent., in Maine, New Hampshire and Vermont; 1575, or 8 per cent., in Michigan, and 267, or 2 per cent., in New Mexico. Part of the losses in those States was due to a reduction in the number of native born residing in the States of their nativity, which also was made in Massachusetts, Connecticut, New York, New Jersey, Wisconsin, Minnesota, the Dakotas, Wyoming, Arizona, Utah, Nevada, Idaho, Washington, Oregon and California.

These figures are indications of the movements within the two parts of the country. Another table, as follows, may help to an understanding of the exchange by migration between the South and the rest of the country:

TABLE G.—NATIVE COLORED POPULATION.						
1880.	1890.					
Born South	Born Elsewhere	Born South	Born Elsewhere	Born South	Born Elsewhere	Born Elsewhere
6,073,205	193,838	26,805	338,701	6,821,351	233,943	66,848

In ten years colored natives of the South living there increased from 6,073,205 to 6,821,351, or 12 per cent., and living elsewhere from 193,838 to 233,943, or 20 per cent. The same class elsewhere living elsewhere increased from 338,701 to 387,938, or 14 per cent., and living in the South, deducting those not designated by birthplace, etc., from 15,820 to 19,502, or 23 per cent. The exchange against the South

increased from 178,018 to 213,441, or nearly 20 per cent. The exchange presented several interesting features. In the South the representation of the North was reduced 345, and was increased 3117 from the West and 916 from the Southwest and Northwest. The South's contributions had increased 32,507 in the North and 10,721 in the Northwest and Southwest, and had diminished 3023 in the West.

On the Border Land.

Still referring to the colored race, in 1890 Pennsylvania had 8300 more Marylanders than it had sent natives to Maryland; Maryland had 8406 more Virginians than it had sent natives across the Potomac, and Virginia had 1060 more North Carolinians than North Carolina had Virginians. In 1890 the series gave Pennsylvania an advantage of 11,353, Maryland 11,854 and Virginia 7258, there being fewer Virginians in North Carolina and fewer Marylanders in Virginia than in 1880. In 1880 there were 11,512 Kentuckians in Ohio and 346 Ohioans in Kentucky. Ten years later Ohio had gained 923 and Kentucky 145 from their respective neighbors. The increase, 40,105, of Southern-born elsewhere, nearly 45 per cent. of the total increase of colored population there, was responsible for 2 per cent. of the total increase outside the South, while the increase, 3682, of Northern-born in the South, though it was an advance of 23 per cent. in that class, was hardly perceptible in its effect upon the total in either section.

There was a smaller proportion of restlessness among the colored population of the South than elsewhere. Still, with the exception of the West, which had sent 3117 of its natives South, contributing nearly 89 per cent. of the total to the increase in that direction, and had lost 3023 Southern born, those living elsewhere did not incline to the South.

Gravitating to Cities.

The large increase from the South in the North had gravitated toward the great cities, it is believed, from Delaware, Maryland, Virginia and North Carolina, and that in the Southwest and Northwest was due to a combination of a movement from Texas and Missouri and one from the West perhaps. In Georgia and Florida may be found clues to the situation in South Carolina and parts of Alabama. This manifestation may be only temporary, for the decrease in the total colored population in Kentucky, the bare increase in Delaware, Maryland, Virginia, North Carolina, Tennessee and Missouri, the decrease in that portion born in other States in Mississippi, Louisiana and Texas, taken in connection with a decrease of the total in New Mexico and Arizona, and the increase of immigrants in Arkansas being nearly 40 per cent. of the total increase in that State, indicate that the Southwestward movement of the negroes has been checked, and that its migration has tended more than ever Northward and Westward.

Drift of Foreigners.

Since the beginning of this century the foreign-born population of the South has been rather an inconsequential element in the total. There is no doubt that slavery had much to do with the preference for the North and West shown by immigrants, but other important factors were the existence of regular lines of direct commerce between Northern ports and Europe, and of east and west lines of railroads, at a time when the vast migration to America began, and the South's disregard of the matter. The theory that normal migration usually follows parallels of latitude until a barrier is reached had not as much weight as the fact that the first government lands opened to settlers on easy terms were north and west of the Ohio.

Between 1880 and 1890 the foreign population of the country increased 38 per cent., being 13 per cent. of the whole in the former year and 14 per cent. in the latter. In the South its increase was from 660,110 to 762,472, or 15 per cent., but its percentage of the total in that section fell from 3.42 to 3.35. The following table shows the movement by States:

TABLE H.—FOREIGN POPULATION OF THE UNITED STATES.						
	1880.	1890.		1880.	1890.	
United States,	6,679,943	9,249,547		Kentucky,	39,517	59,336
				Tennessee,	16,702	20,029
Delaware,	9,468	13,161		Alabama,	9,734	14,777
Maryland,	82,806	94,206		Mississippi,	9,209	7,952
District of Columbia,	17,122	18,770		Louisiana,	54,146	49,747
Virginia,	14,696	18,374		Texas,	114,616	152,956
West Virginia,	18,265	18,883		Arkansas,	10,350	14,264
South Carolina,	3,742	3,702		Missouri,	211,578	234,809
South Carolina,	7,686	6,276		Total South,	660,110	762,472
Georgia,	10,564	12,157				
Florida,	9,909	22,932				

There was a decrease of 40 in North Carolina, 1416 in South Carolina, 161 in Kentucky, 1257 in Mississippi and 4399 in Louisiana. West Virginia narrowly escaped having a decrease. Of the other States, Maryland, the District of Columbia, Georgia and Missouri show an increase below the average for the South, while Delaware's 39 per cent., Alabama's 53 per cent. and Florida's 131 per cent. were above the average for the whole country.

Adoption After Training.

The end of the present decade will, it is believed, show a marked change in respect to foreign population in the South. It still boasts of being the most homogeneous American section of the country. But on the tide of immigration from other portions of the land turned in its direction during the past eight or nine years have been borne many a native of a foreign land who has assimilated the spirit of American institutions. Men of that stamp who are thrifty and energetic are of value to the South, and they will surely be of educational service to those direct from Europe increasing in number with the development of the commercial importance of Southern ports.

Virginia and Massachusetts.

Little has been said in this paper of the effects of the century's migration upon the oldest sections. A comparison of Virginia and Massachusetts will indicate them. These Commonwealths may be regarded as types in their respective sections of States that have contributed largely to the populating of other regions, and each has made an impress upon the settlement of the great West and upon the history of the whole country.

In the census of 1860 no distinction was made between whites and free negroes in the statistics of the movement of population. But that there were more free negro natives of Virginia beyond its boundaries than of the same class of Massachusetts born outside Massachusetts is extremely probable. The free negro element, however, will not materially affect the totals in comparison. Twenty-eight per cent. of the free population born in Virginia and 22 per cent. of the free natives of Massachusetts were living in other States in 1860. Thirty years later, the migration

from Virginia having been greatly accelerated in the meantime, the two States presented marked differences revealed in the following tables:

TABLE I.—VIRGINIA AND MASSACHUSETTS 1890.				
	Native Whites.	Foreign.	Colored.	Total.
Virginia	1,001,932 ¹	18,374	635,673	1,655,980
Massachusetts	1,561,870 ¹	657,137	19,936	2,238,943

¹Including 1511 not specified, etc. ²Including 9217 not specified, etc.

WHITE NATIVES OF VIRGINIA AND MASSACHUSETTS 1890.

	In Native State.	North.	South.	West.	Southwest.	Northwest and
Virginia	940,520	23,035	246,788	106,066	18,546	
Massachusetts	1,246,953	145,553	17,580	74,138	34,755	

NATIVE WHITES IN VIRGINIA AND MASSACHUSETTS 1890.

	Of the State.	Of the North.	Of the South.	Of the West.	Southwest.	Of Northwest and
Virginia	940,520	16,757	38,523	4,379	243	
Massachusetts	1,246,953	283,900	7,941	12,121	1,636	

The foreign population of Virginia was 1.10 per cent., and of Massachusetts 29.39 per cent. of the total. The colored population of Virginia was 38.38 per cent., and of Massachusetts .89 per cent. of the total. The statistical resemblances of the colored population of Virginia to the foreign born of Massachusetts and vice versa are also clearly seen in the fact that there was but 23,032 difference between the totals of the two classes in the two States.

Of the 1,334,985 white natives of Virginia, 29 per cent., or 394,465, were in other States. Sixty-three per cent. of these were in the South, 6 per cent. in the North, 26 per cent. in the West and 5 per cent. in the rest of the country. The State had contributed 334,563 more persons to other States than it had received from them. Of the immigrants, constituting 6 per cent. of the total, 64 per cent. were from the South, 28.6 per cent. from the North, 7 per cent. from the West and .4 per cent. from the Northwest and Southwest.

There was a greater propensity to stay at home in Massachusetts than in Virginia. Only 18 per cent., or 272,026, of the natives of Massachusetts, which was 122,436 less than the wanderers from Virginia, were outside the State. Of these, 54 per cent. were in the North, 27 per cent. in the West, 13 per cent. in the Northwest and Southwest, and 6 per cent. in the South. The balance of exchange in its favor between the State and other States was 33,488. This is explained by the large migration of 224,492 from other New England States and 47,720 from New York. The total, 272,212, was the vast majority of the 92.5 per cent. gained from the North. From the South came 3 per cent., from the West 4 per cent., and from the Northwest and Southwest .5 per cent.

There were 1470 Virginians in Massachusetts and 914 natives of Massachusetts in Virginia. Massachusetts sent 9636 more natives South than it received from that section, and Virginia sent 6278 more North than came to it thence, but while Massachusetts was the North's debtor to the amount of 138,446, the South owed Virginia 208,265 after the exchange had been balanced.

In Part Explanation.

Though these two States are types of their respective sections, they are in a certain sense extreme types. Virginia in an agricultural age was able to support a much larger population than Massachusetts. That fact led Massachusetts to seize every opportunity of the industrial age in this country which induced stability of population and immigration, while slavery kept Virginia, largely a farming community, upon a basis that compelled emigration.

Four years of war, which wiped out that basis, were calculated to give Massachusetts even greater advantage, which has been increased by influences of the past thirty years. The ruined Virginia of 1865 sent thousands of its natives, many of them the most energetic, to other States in search of opportunities, and the outflow has not yet ceased.

Their interest is shadowed in their migration to cities. In the United States, outside of Virginia, are eighteen cities having more than 1000 Virginians in their population. Among them are Washington, 37,184; Baltimore, 18,207; Philadelphia, 10,022; New York, 8875; Pittsburgh, 4057; Brooklyn, 3414; St. Louis, 3175; Chicago, 3115; New Orleans, 2947; Boston, 2584; Cincinnati, 2077; Memphis, 1983; Louisville, 1640; Atlanta, 1180, and Nashville, 1167. There are, on the other hand, twenty-two cities outside of Massachusetts having more than 1000 natives of Massachusetts in their population. The two largest numbers were 11,418 in Providence, R. I., and 10,601 in New York city. In this respect those of the dispersion from both States possess similar traits, and it is not surprising to find other States of the South sharing Virginia's tendency, giving Philadelphia 45,840, Chicago 26,837 and New York 24,755 of their populations, other cities having smaller aggregations.

The Southern white element in cities elsewhere seems destined to become of less relative importance in the future. It represents the desire for political preferment not to be satisfied in the overstocked home market, the seeking for wider opportunities for the exercise of professional gifts, and for greater chances to gratifying commercial ambition. The agricultural element is the survival of a much earlier movement.

Trending to the South.

More than a century ago the streams of pioneers from the North and the South met in the Ohio valley. Before the Northwest territory had been fully occupied the Southern stream was diverted by the opening of Alabama and Mississippi to settlement, the acquisition of Louisiana and Florida, and, with stronger force, the annexation of Texas, though a strong rivulet still flowed toward the Ohio. The results of the war maintained the drift from the older States toward Texas, and swelled temporarily that toward the North. As the pioneer era of migration in America has reached its last stage, a reflex action has begun, which will be to the great advantage of the South, where new conditions have developed. From a section dominated by agriculture of an extensive character it is becoming one in which the small farm will increase in importance every year. From a producer and primary manipulator of raw material it has grown to be a manufacturer of various grades of cotton, of lumber, iron and steel under a happy combination in close neighborhood of spindles and cotton bolls, natural power, fuel and ore, and is exporting not only its own products, but those of the agricultural Northwest and West. Steamships running direct from Southern ports to Europe, and great lines of railroads extending from the Potomac, Ohio and Missouri to the Gulf and South Atlantic coasts are fulfilling the broad aspirations of Southern men of fifty and sixty years ago. The resultant will be that the South will be better and better able to support its own growing population, as well as the thrifty and enterprising who come from other parts of the country.

COMMERCE.

This department is devoted to a record of the rapidly developing commerce of Southern ports.

International Commercial Congress.

In connection with the International Commercial Congress to meet in Philadelphia in June, 1890, there will be a national exposition for the exhibition of American manufactures under the auspices of Philadelphia Commercial Museum and the Franklin Institute. Mr. William Harper, who has been appointed director-general, alluding to the congress, says: "There will be represented not only the leading chambers of commerce of Latin America, but also those of South Africa, India, Australia, China, Japan and other countries. This will bring together about 400 leading merchants from all parts of the world, who will come to make business connections in the United States and to discuss the best means of extending American trade into their respective countries. The convection of this congress affords a most excellent opportunity for holding an exposition of such American manufactures as are best suited for export trade. Such an exposition, representing all lines of industry, will give to a foreign merchant an unusual opportunity to study and examine what he can best buy in the United States, and will undoubtedly be the means of attracting large numbers of buyers from all parts of the world. The co-operation and approval of foreign chambers of commerce is already assured."

Business at Port Arthur.

The steamship Themis, of the Port Arthur & Mexican Steamship Line, recently brought from Mexico a cargo of sisal used for making twine. It was loaded on trains of the Kansas City, Pittsburg & Gulf system at Port Arthur and taken to Chicago. About 100 freight cars were required to handle it.

The steamship Haddon Hall, of the European Line, of Port Arthur, recently cleared with the largest export cargo yet loaded at this point. It consisted largely of grain and packing-house products from Kansas City, and was made up of 9368 sacks of corn flour, 8000 sacks of wheat flour, 300 bales of hog's hair, 500 tierces of lard, 2800 pails of lard, 539 cases of ox tongues, 620 cases of canned corned beef, 4800 pieces of walnut lumber, sixty barrels of corn oil, 26,472 bushels of wheat, 23,535 bushels of corn, 500 barrels of cottonseed oil, 4027 bales of cotton, 11,868 plates of spelter, 2500 bags of sugar, 1450 barrels of glucose. Total value of cargo, \$348,950.

White Star Line at New Orleans.

It is stated that the White Star Steamship Co., at New York, is considering a plan which, if carried out, will be of the utmost importance to New Orleans. The plan, it is reported, includes the establishment of a steamship line between Europe and New Orleans. John W. Martin, a representative of the company, has recently visited the Louisiana port with the view of ascertaining the depth of water and its facilities. As is well known, the White Star Steamship Co. is one of the largest in the world and maintains a very large fleet of passenger and freight vessels out of New York. Mr. Martin is quoted as saying that the Southern States are attracting so many European immigrants that it is the impression that a passenger service between some Southern port and Europe would be a good business venture. The vessels would undoubtedly be of large

size, with a freight capacity equal to any of those now entering New Orleans.

Widening Our Markets.

An organization which is rendering excellent service in widening the market for American manufactures is the United States Export Association, of New York, of which Mr. F. B. Thurber is president. During the past year, beside maintaining an information bureau in New York, it has established correspondents in all foreign countries, laid the foundation of a foreign credit system, and by its bulletins, issued in four languages, has reached for advertisers 18,000 solvent buyers. Very truly it is said that a million dollars of manufactures exported is worth ten millions of natural products, for thereby American labor is employed and a better margin of profit is offered. The excellent work done by the association deserves the co-operation of all persons who are interested in widening the market for American products. The membership represents more than \$7,000,000 invested capital. It should represent \$25,000,000.

Old Bay Line.

The steamer Georgia, of the Old Bay Line, which has been out of commission for several weeks, has again been put on the route between Baltimore, Old Point, Norfolk and Portsmouth. Every portion of the vessel has been overhauled. Her hull has been repainted and wherever necessary, the saloons and staterooms refitted and refurnished. The Alabama has gone into the dry-dock for her annual inspection and overhauling, the steamer Virginia being substituted for her on the route.

More Terminals for Exporting.

According to a dispatch from Mobile, Ala., the Mobile & Ohio Railroad Co. is making arrangements to increase its tide-water frontage in that city. A deed has been filed recording the sale of about 1500 feet of water front to William Butler Duncan, chairman of the board of directors of the Mobile & Ohio. It is understood that the property will be improved by the erection of wharves and other terminal facilities.

Jottings at the Ports.

The steamship Oak Branch, which has been loading at Mobile and Galveston for Japan, has sailed for that country with about 10,000 bales of cotton, 2250 tons of rails and 125 tons of iron. Her cargo is considered equal in size to 11,000 bales of cotton.

The fruit trade between Mobile, the West Indies and Central America is assuming large proportions. A steamship recently arrived at Mobile with 15,000 bunches of bananas, most of which were shipped to the West by way of the Mobile & Ohio Railroad. The vessel carried a return cargo of miscellaneous freight to the West Indies.

According to the last report of the Bureau of statistics, in January, 1897, Baltimore exported articles to the value of \$5,832,534, while in January, 1898, the value of the exports were \$11,409,354. For the seven months ended in January last the exports from Baltimore were valued at \$69,316,106, as against \$50,822,254 for the same period a year ago. In 1883 the total value of the exports was a little more than \$55,000,000, while in 1897 the total value of exports was \$85,692,000.

At the annual meeting of the general council of Mobile, Ala., Mayor J. C. Bush announced that after twelve months of unusual ordeal the city was free from debt.

RAILROAD NEWS.

[A complete record of all new railroad building in the South will be found in the Construction Department.]

RAILROAD ACTIVITY IN VIRGINIA.

Work Begun on Two Important Systems in This State.

It is announced that the Richmond, Petersburg & Carolina Railroad Co. has begun active work upon the road between Petersburg, Va., and Ridgeway, N. C., a distance of about forty-five miles, and has given a mortgage to secure a bond issue to the Mercantile Trust Co. of New York. Contract for the first twenty miles has been given to W. P. Chapman, who has opened an office at Petersburg. It is stated that about 400 men have already been employed. This road, which will be parallel to the Atlantic Coast Line and connect with the Seaboard Air Line at Ridgeway, N. C., is being backed by Northern parties, as already stated in the Manufacturers' Record. The president is DeWitt Smith, 50 Broadway, New York; vice-president, Gen. James Negley. This is supposed to be a part of the new system to be formed between the Potomac river and the South.

It is also announced that work has begun upon the Virginia, Fredericksburg & Western Railroad. This project has been referred to several times in the Manufacturers' Record, and is being promoted by a company of which Hon. Charles H. Gibson, of Easton, Md., is president; Geo. L. Rodgers, of Bridgeport, Conn., secretary, and W. A. Little, of Fredericksburg, one of the directors. It is proposed to be built from a point on Chesapeake bay through that portion of the State which is south of the Rappahannock river, and at present has no railroad facilities, to Fredericksburg. The route then runs west through Stafford and adjoining counties. At Harrisonburg, Va., is the eastern terminus of the Chesapeake & Western Railroad, and it has been rumored that the Fredericksburg line would be built to a connection with this in Harrisonburg, as Harrisonburg is nearly west of Fredericksburg. The object of building both these lines, it is stated, is to give a new outlet to tidewater from the coalfields of West Virginia, and it has been reported that the West Virginia Central Company is interested in the Chesapeake & Western project. J. W. Coffin, of New York, has secured the contract for grading the line in Stafford county opposite Fredericksburg, and a grading outfit is now on the ground. A bridge will be required across the Rappahannock river at this point.

Important North Carolina Road.

Progress has been made on a railroad line which will be an important factor in opening up the central portion of North Carolina. It is termed the Moore County & Western, and is controlled by a company which proposes to build between Concord, N. C., and Aberdeen, in the same State. At the former town, which is an important manufacturing community, the road will reach the Southern system, while at Aberdeen it connects with the Seaboard Air Line. About seventeen miles have been built, of which thirteen miles comprise what was formerly known as the Moore County Railroad, built by a Northern syndicate from Aberdeen into a lumber district several years ago. In a letter to the Manufacturers' Record one of the promoters of the company writes that arrangements

have been made by which \$1,500,000 have been borrowed of the International Trust Co. of Boston to construct and equip the line. A number of Northern parties are interested, among them being J. H. Waite, of Boston, Mass.; also Clark J. Brown, of the same city; J. S. Kellogg, of Providence, R. I.; George Maitly, of Central Falls, N. Y.; G. M. Clark, of Newark, N. J., and John C. Wadsworth, of Concord. Mr. Wadsworth is connected with the firm of Yorke, Wadsworth & Co., dealers in machinery and vehicles. It is stated that a portion of the improvements will consist in relaying track and improving the Moore County Railroad. The entire length of the line will be ninety and one-half miles.

To Cotton-Mill Towns.

A charter was granted by the South Carolina legislature at its last session for a company which proposes to build a very important line in the cotton-manufacturing section of South Carolina and Georgia. It is termed the Central Carolina Railroad Co., and has a capital of \$500,000. The route proposed is from Augusta, Ga., to Greenville, S. C., passing through the towns of Saluda, Edgefield and Greenwood. Both of the terminal points contain extensive factories, while each of the other towns is a manufacturing community. The incorporators include the following: Alvin Etheredge, of Saluda, S. C.; Eugene W. Able, T. S. Edwards, H. S. Cunningham, Eugene S. Blense, S. T. Boatwright, B. F. Etheredge, W. D. Berry, S. T. Edwards, W. S. Allen, A. S. Tompkins, W. H. White and Walter Ashley.

The road would reach the Southern system at Greenville, while at Augusta it would connect with the Charleston & Western Carolina division of the Atlantic Coast Line, also with the South Carolina & Georgia system. It would give either of these roads an entrance into the section referred to and would be a valuable branch.

Tennessee Extensions.

In the last issue of the Manufacturers' Record reference was made to the formation of what is known as the Knoxville & Bristol Railroad Co., and the assumption that it would form an extension of the Norfolk & Western system to Knoxville, Tenn. Since then a dispatch has been received from Philadelphia practically confirming the connection with the Norfolk & Western. This, however, it is believed, is but a portion of the scheme, which includes a combination of roads extending as far as Louisville, Ky. Several times recently the Manufacturers' Record has referred to the operations of Mr. Adolph Segal, of Philadelphia, who has already purchased the Morristown & Cumberland Gap Railroad, the Louisville & South-eastern, and it is understood intends buying the Beattyville & Cumberland Gap, another short road in Eastern Kentucky, when it is sold by order of the court. Under the circumstances, the supposition is that when the plans are carried out the Norfolk & Western will have a connection to Louisville, also to Knoxville, Tenn., with branches penetrating Eastern Kentucky.

Two Tennessee Projects.

Interest has been revived in the Tennessee Central Railroad by an inspection of its route by a committee, which, it is reported, represents the Mississippi Valley Trust Co. of St. Louis. The committee includes the following: J. C. Van Blarcom, Geo. H. Goddard, Rolla Wells and B. Jones, of St. Louis; L. V. Clark,

of New London, Conn., and T. C. Doremus, of New York city. It is reported that if their report is favorable the Trust Company will favor its completion and will finance the undertaking. A number of contractors have gone over the line with the view of putting in bids as soon as they are invited.

It is stated that the Cumberland Mountain Railroad Co., which is operating in the same portion of the country, has let a contract to J. M. Dobbins & Co., who will do the grading. The line is to be about forty miles in length, and will connect with the Cincinnati Southern system extending through Fentress county.

The Richmond "Tramp" Locomotive.

The experimental compound locomotive "Tramp," of the Richmond Locomotive Works, it is announced, is to be sent North for trial service on the Fitchburg Railroad. The engine will run out of Boston in competition with simple expansion engines. The "Tramp" has been over nearly the entire country, and has just returned from New Mexico, hauling trains over the route home. The Chesapeake & Ohio, the Baltimore & Ohio and the Jersey Central will give the engine a test after its service in New England. It is stated that the first-named road has adopted this type of compound. It has been arranged to have the engine haul trains from Richmond to Jersey City.

Pittsburg, Virginia & Charleston.

In a letter to the Manufacturers' Record Samuel Rea, president of the Pittsburg, Virginia & Charleston Railway Co., which is a branch of the Pennsylvania system, writes as follows relative to the extension of this road into West Virginia:

"While the Pittsburg, Virginia & Charleston Railway Co. some years ago made surveys for an extension of its line, no arrangements have yet been made to construct same."

Southern Iron for Ordnance.

The Southern Railway Co. recently made a contract to carry several consignments of charcoal iron from Rome, Ga., to Bethlehem, Pa. This iron is intended for ordnance, and is made by the Rome Furnace Co. The first shipment consisted of 100 tons.

Railroad Notes.

James Kyle, of Fayetteville, N. C., has been elected manager of the Wilmington Tariff Association.

It is announced that the South Atlantic & Ohio Railroad will be sold by order of the court at Bristol, Tenn., on April 26.

It is announced that the office of the Blue Ridge Dispatch Freight Line will be removed to Louisville, Ky., on April 1. Don Alexander is general manager of the line.

The present owners of the Blue Ridge & Atlantic Railroad, which is in operation between Cornelia and Tallulah Falls, Ga., has changed its title to the Tallulah Falls Railroad.

The Elliott Car Co., of Gadsden, Ala., has secured an order for 200 additional box cars for the New Orleans & Northeastern Railroad Co. The company now has orders which will keep the plant busy for several months ahead.

It is reported that the Missouri Pacific Railroad Co. is desirous of purchasing the Little Rock, Hot Springs & Texas Railroad, now in the hands of the court and

uncompleted. It is stated that an offer has been made for the line by a representative of the Missouri Pacific.

In a letter to the Manufacturers' Record W. P. McRae, secretary of the Petersburg Electric Railroad Co., states that arrangements have not as yet been completed for the rebuilding of this line. The company which recently purchased it will, it is reported, make a number of important improvements. Edward C. White, of New York, is president.

Thirty-one thousand tons of 75 to 85-pound steel rails will be placed in the B. & O. system. It is expected that the work will begin by April 1, and be completed within three months. Twenty-one thousand tons will be laid east of the Ohio river, and forms part of the 40,000 tons purchased last summer, the balance being the 10,000-ton lot recently bought by the receivers for west of the Ohio river.

The Missouri Pacific Company has re-elected its present general officers, who are as follows: President, George J. Gould; vice-president and general auditor, C. G. Warner; general manager, W. B. Dodridge; secretary and treasurer, A. H. Cafel; assistant treasurer, Guy Phillips; second assistant secretary, F. W. Ireland; local treasurer, D. S. H. Smith; executive committee, G. J. Gould, Russell Sage, Sam Sloan, T. T. Eckert, D. D. Parmy, Louis Fitzgerald and Edwin Gould.

Iron Markets.

Cincinnati, Ohio, March 19.

The business of the week just closing has been a continuance of about the same volume, and at about the same prices as the preceding week.

The possibility of war has not disturbed the equilibrium of trade, evidencing full confidence in the national government and the preparation of the country for any emergency that may arise.

The activity of the malleable-iron trade is the conspicuous feature in the foundry branch of the iron industries, though there seems to be an expansion of business in nearly all departments of foundry work.

It is thought that production and consumption are now keeping quite even.

We quote for cash f. o. b. Cincinnati:

Southern coke, No. 1 foundry	\$9 750	\$10 00
Southern coke, No. 2 foundry	9 500	9 75
Southern coke, No. 3 foundry	9 250	9 45
Southern coke, gray forge, ...	8 750	9 00
Southern coke, mottled, ...	8 750	9 00
Southern coke, No. 1 soft, ...	9 750	10 00
Southern coke, No. 2 soft, ...	9 500	9 75
Belfont coke, No. 1, Lake Sup.	11 000	11 50
Belfont coke, No. 2, Lake Sup.	10 500	10 75
Hanging Rock charcoal, No. 1, ...	14 500	15 50
Tennessee charcoal, No. 1, ...	12 500	13 00
Jackson Co. silvery, No. 1, ...	12 500	13 00
Standard Georgia car-wheel, ...	14 250	15 00

New York, N. Y., March 19.

The iron markets continue quiet, under the same influences as previously reported. There is abundant strength, however, at the foundation, and it only awaits a settlement of international difficulties to bring out a normal volume of business. Prices have suffered no change, and shipments are going forward freely on old contracts. A few good-sized orders have been placed the past week, but the run of business has been mainly in small lots and carloads. There is a good deal of activity in high numbers of special grades of charcoal iron. This grows mainly out of the government requirements connected with war preparations. Furnaces making this class of iron are already fully sold.

We quote for cash f. o. b. New York:

No. 1 X standard Alabama	\$10 750	11 00
No. 2 X standard Alabama	10 500	10 75
No. 1 X lake ore coke iron	12 500	12 75
No. 2 lake ore coke iron	12 000	12 25
Niagara coke malleable	12 000	12 25
Rome (Ga.) charcoal	13 000	13 50
Hinkle L. S. charcoal	13 000	13 50

ROGERS, BROWN & CO.

TEXTILES.

[A complete record of new textile enterprises in the South will be found in the Construction Department.]

Correspondence relating to textile matters, especially to the cotton-mill interests of the South, and items of news about new mills or enlargements, special contracts for goods, market conditions, etc., are invited by the Manufacturers' Record. We shall be glad to have such matter at all times, and also to have any general discussion relating to cotton matters.

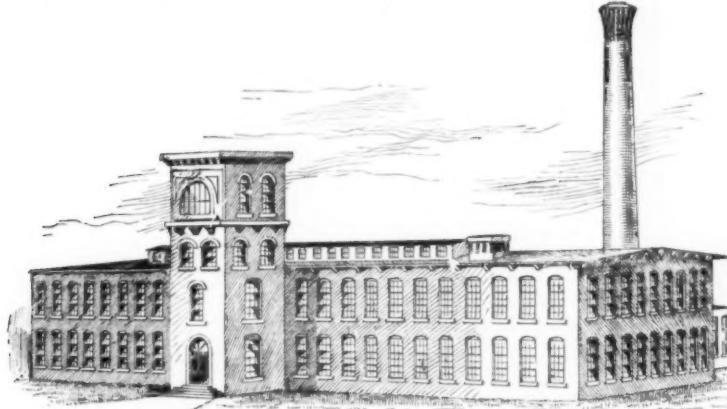
CLEMSON'S TEXTILE SCHOOL.

The Building to Be a Model Cotton Factory.

South Carolina seems destined to lead in the South in offering first-class opportunities for thorough training in the textile industry. With an appropriation of \$12,500 and a reasonable expectation that all the machinery will be lent or given by manufacturers of cotton-mill machinery, the textile department of Clemson College will soon begin operations. Its home will be a model cotton factory, as shown in the accompanying illustration, and its graduates will be equipped for practical work, as the increasing importance of the South as a cotton manufacturer demands. A course in cotton manufacture will be taught first, but later the study of woolen and silk manufacture will be added, especially in those depart-

in the development of her varied manufacturing interests. The fruits of the establishment in that country of the system of textile, technical and special training schools are now very conspicuous.

Especially will the textile school at Clemson be of advantage to the people of South Carolina. Even though a man working in a cotton mill may not be able to attend the school, he ought to be materially helped by contact with those who have been there, but the school will make provision that a superintendent or a boss carder, or any other operative in a mill, may go there for special instruction for a few days or for a few weeks. For example, if a boss carder wants to learn the calculations necessary to take entire charge of a mill, he could go to Clemson for a short time, pay a small fee, and be specially instructed. The undoubted development of the manufacturing interests in the State consequent upon the establishing of the school will create a greater demand for labor and higher wages. Mr. D. K. Norris is chairman of the executive committee of the trustees of Clemson College, having charge of the establishment and equipment of this textile department. The trustees have selected to take charge of the technical and engineering works and of the equipment Mr. D. A. Tompkins, of Charlotte, N. C., who has, as is well known, by his writings, by word of mouth and by personal endeavor, given much time and interest to the textile



BUILDING FOR TEXTILE DEPARTMENT, CLEMSON COLLEGE, S. C.

ments where cotton is mixed with wool.

The influence of such a school on the development of the textile art in the South will be advantageous from every point of view. It will benefit the labor, because it will disseminate knowledge that is needed by all Southern labor, if it is to keep pace with the growth of the textile industry. It will benefit the manufacturer, because it will give to him the advantages of this increased efficiency of labor, and it will have a decided influence upon the education and training of the youth of the country. In the past the young man of the South has in many, many cases been obliged to go to the North or the Northwest to find opportunities for a start in life for intelligence and energy. This is largely because those youths that have been educated in a technical way have believed that the necessary schools were to be found only in the North and Northwest. Such schools were adapted to the manufacturing conditions surrounding them; therefore, when a young man graduated from them and returned home he learned that the qualifications which he had acquired were fitted better to other sections than his own. In this way the South has lost much of its best blood, and the development at home has been largely accomplished by people who have had scanty knowledge and scanty facilities for the work they were doing. The benefits of technical training in textile lines are manifest in the wonderful strides that Germany has made

school idea. Under his guidance and suggestion the people of South Carolina, and of the rest of the South, may be assured that everything possible will be done to make the textile department of Clemson a model and a practical promoter of all interests concerned, of the manufacturer, as well as the employee.

In a communication in the Charlotte (N. C.) Observer, evidently from an authoritative source, it is announced that the building will be equipped with machines for the work of the various departments of a mill in the manufacture of cotton. These machines will be set up and equipped to be operated. Besides lectures and the study of text-books on the manufacture of cotton, each student will be required to analyze the construction of each machine by taking it to pieces and putting it together again. This will be done under the direction of an instructor, who will explain the functions of the different parts of the machine. A careful explanation will also be made of the manner of adjusting the various machines for different work. It is the purpose to provide not only a complete course of textile instructions and training for the regular students of the college who may wish to take the course, but especial arrangements will be made so that those already engaged in a cotton mill may go to this school for a day or a week or a month to get special instruction upon some point that stands especially in the road of the progress of

an individual who is otherwise making good headway. Provision will also be made for the study of dyestuffs and their uses. An opportunity will be given for the examination and determination of the value of dyestuffs.

"The Inevitable Transfer of Cotton Cloth Manufacture."

The leading papers of the country are rapidly coming around to the position long held by the Manufacturers' Record as to the inevitable trend of cotton manufacturing and other industries to the South. For many years the Manufacturers' Record stood almost alone in many of the claims that it maintained on this subject, and even Southern papers often criticised its advanced position, but it has lived to see the most radical change in the world's opinion as to the South's industrial future. Even Gunton's Magazine, in an editorial in its last issue, says:

"In discussing the New England cotton situation the American Economist shows good sense and clear economic insight. It recognizes that the necessary trend of the cotton industry is to the South, but also perceives that for a considerable time only the coarser grades of cotton goods will be manufactured in that section. It advises New England manufacturers to delay no longer in preparing their mills for the production of finer grades of goods, such as plushes, velvets, velveteens, chenille curtains, table covers, hose, etc., on all of which the Dingley law affords ample protection. Says the Economist:

"It is becoming more and more evident that the Southern mills, by reason of the lower cost of production, can and will control the market for the coarser and cheaper grades of cotton fabrics. New England's necessity is, therefore, her opportunity. The largest and best market in the world for the finer and more varied qualities of cotton textiles is right here at home. This is New England's opportunity."

"This is sound advice, and should be heeded; in fact, the inevitable transfer of cotton cloth manufacture to the South should have been foreseen and prepared for, as the Economist suggests, years ago."

It will not be many years before Gunton's Magazine, and all other publications, will have to admit that not in coarse goods only, but in all branches of textile industry, the South will hold the dominating position.

Sound Advice to Planters.

In a circular issued by Messrs. Latham, Alexander & Co., of New York, it is shown that the total visible supply of cotton in the world is 613,828 bales more than last year, 660,092 bales more than in 1896 and 477,568 bales less than in 1895; that the amount of cotton that has been marketed to date is 2,105,027 more than last year, 3,694,781 bales more than in 1896, and 1,045,986 more than in 1895; that the exports this year are 977,896 bales more than last year, 2,365,470 bales more than in 1896, and 514,674 bales more than in 1895, and that the stock in United States ports is 288,385 bales more than last year, 357,330 bales more than in 1896, and 91,896 bales more than in 1895. Upon these facts the circular bases the following sound advice:

"The planters of the South have no encouragement to plant cotton largely this year, with the Anglo-Russian-Chinese complications existing in the East, which might before the new crop could be marketed greatly reduce the value of cotton, and the strained relations of our government with Spain, which possibly

might result in war, staring them in the face. Even with permanent peace existing between all the nations of the globe, the consumptive demand for cotton would not be sufficient to warrant the production of another such large American crop as last year. An inevitable loss to the whole South, in our opinion, would surely follow."

Underwear Mill for Richmond, Va.

Announcement has been made of a large knitting plant to be established at Richmond, Va., by an experienced knitting-mill operator from the North.

Negotiations have been closed with J. B. Elam & Co., of Richmond, for a building by Mr. E. M. Gross, until recently of the E. M. Gross Manufacturing Co., of Troy, N. Y., of which firm he was senior member for eighteen years.

Mr. Gross will install a complete equipment of 120 machines and complementary machinery for the manufacture of shirts, skirts and general underwear from silk, cotton and wool; capacity to be about 300 dozen garments daily. The number of operatives to be used will probably be 200. M. Strassburger, of Baltimore, Md., will be interested in this mill. Mr. Gross is stopping temporarily in Richmond with Mr. Jos. I. Levy, 100 East Marshall street.

Doubling a Knitting Mill.

The Hart Manufacturing Co., of Flat Rock, N. C., has determined to double its hosiery mill. The capital stock of the company will be increased from \$25,000 to \$50,000, and the additional funds so required will be expended in the proposed improvements. A new building will be erected, and probably seventy-five new knitting machines installed. Seventy-five machines is the number in the present mill. The product is heavy seamless hose and half hose and 250 employees are utilized. Mr. P. W. Hart is secretary of the company.

Georgia's Textile School.

The trustees of the Georgia School of Technology will shortly send an agent through the State to ask subscriptions for the \$10,000 fund to be raised in order to make available the \$10,000 appropriated by the legislature for the establishment of the school. Three thousand dollars have already been raised, and the outlook is that there will not be much trouble about getting the remainder. All of the plans of the famous Lowell Textile School have been received, and nearly all of the necessary equipment.

The Cotton Movement.

In his report for March 18 Secretary H. G. Hester, of the New Orleans Cotton Exchange, shows that during the season 9,975,418 bales of cotton have been brought into sight, an increase of 1,105,027 over last year; exports were 5,916,000 bales, an increase of 944,366; Northern mill takings 1,958,264 bales, an increase of 529,837, and Southern mill takings 752,950 bales, an increase of 37,029 bales.

British Textile Machinery.

Reports of the exports of British textile machinery show that their value in February was lower this year than in February of 1897 and 1896. There was an increase over 1897 in the exports to Russia, the United States, South American countries, Australasia and the group of other countries, but all except the last two were below those of 1896.

The New Mill at Rockingham, N. C.

Mr. W. C. Leak, president of the Pee Dee Manufacturing Co., of Rockingham,

N. C., writes, giving full particulars of the company's proposed new mill. The mill will be known as No. 2, and will be equipped at first with 4000 spindles, 200 looms for manufacturing plaids, electric plant for lighting the entire plant, automatic-sprinkler system for fire protection and necessary steam-power plant. The entire outfit will be of the latest improved designs obtainable and correspondence regarding the award of contracts is now invited.

Textile Notes.

Messrs. L. H. Wilcox & Sons, of Lynn, N. C., are erecting an addition to their knitting mill, to be equipped as a finishing-room.

The Cherry Cotton Mills, of Florence, Ala., has declared a quarterly dividend of 3 per cent.

The Lincoln Cotton Manufacturing Co., of Lincoln, N. C., has declared a dividend of 10 per cent.

Mr. James G. Lyell, of Wesson, Miss., contemplates the establishment of a rope factory in Jackson, Miss.

The Pearl Cotton Mills, of Elberton, Ga., has ordered a quantity of new machinery, including spinning and roving apparatus and 1000 spindles.

The California Woolen Mills Co., of California, Mo., has been incorporated, with capital stock of \$15,000, by Frank Kenepel, Frank Hugelman and Peter Herfurth.

The Dunham Hosiery Co., of Naugatuck, Conn., writes the Manufacturers' Record that there is no truth in the report of its intention to establish a plant in Huntsville, Ala., or at any other Southern point.

Repairs have been completed on the damaged rooms of the Knoxville Woolen Mills, Knoxville, Tenn., recently damaged by fire. The fire did not interfere in any way with the production of goods, and, in fact, was of mere nominal amount.

A large New England cotton mill may possibly remove its plant to the South or establish an entirely new plant. A representative of the company has been in Georgia recently investigating, in company with the industrial agent of the Southern Railway.

The contemplated cotton-rope mill for Jackson, Miss., is now assured. A stock company, with \$20,000 capital, has been organized and will arrange for the building of the mill at once. Mr. T. McChesney is forming the company. A mill to produce knit goods is also proposed by the company.

The Oxford Knitting Mills (not Eagle Mills), as recently noted, will establish its mill at once. The plant is to have a paid-in capital of \$15,000, half of which will be furnished by a New York firm, and the other half by the J. C. Collier Co., of Barnesville, Ga. The mill will be located at Barnesville, Ga., and its daily capacity is to be 250 to 300 dozen pairs of garments, employing seventy-five hands.

Deputy quartermaster-general U. S. A., John V. Furey, now stationed at 1428 Arch street, Philadelphia, Pa., will open proposals March 28 for twilled drillings to be supplied to the Schuylkill Arsenal.

Will buy 5000 yards of double-faced twilled drilling, thirty-three inches wide, not exceeding in weight seven and one-half to eight ounces to the linear yard. Drilling to be dyed in the fiber; weave and finish to conform to sample now on exhibition, and color must conform to sample of duck now on exhibition. Further particulars on application to Mr. Furey, as above.

COTTONSEED OIL.

This department is open for the full and free discussion of trade topics and practical questions, and contributions are invited from men who are identified with this industry. Items of news are always acceptable.

The Market for Cottonseed Products.

New York, N. Y., March 22.

The cotton-oil market has not improved since our last, notwithstanding the strong statistical position of the article and the favoring markets for hog and beef fats. The export demand has continued to languish, and as domestic requirements at the moment are insignificant, prices are correspondingly weak and unsettled.

Crude is comparatively scarce at this market and higher than refined in relation to the cost of refining. In this respect it is worthy of note that the mills are offering sparingly, feeling satisfied that higher prices will prevail not later than the early part of April. This circumstance tends to maintain the market more than any other current happening. Stocks of oil of all quotations in consumers' hands, domestic and foreign, are yet sufficient to enable them to hold off for some little time. The season throughout has been, on the whole, a profitable one to producers, and there is little doubt of their ability to tide over the present stagnation until oil is again in demand. Lard is quoted at 5.21 $\frac{1}{2}$ cents, Chicago, May delivery, and tallow is strong at 3 $\frac{1}{2}$ cents, this market. Reports from producing centers indicate that the entire season's output of oil will not be excessive, notwithstanding that liberal supplies of seed are yet held in some sections. Compounders and soapmakers are out of the market for the present, but, at a concession from prices current, activity would doubtless be a leading feature. White oil is selling in a limited way at 25 to 26 cents, and winter yellow at 27 to 28 cents. With regard to summer yellow, from 22 $\frac{1}{2}$ to 23 cents are the prevailing quotations. Crude in bulk, valley, is quoted at 16 $\frac{1}{2}$ to 17 cents; Texas at 15 to 15 $\frac{1}{4}$ cents, and Atlantic coast points at 16 cents. Barreled crude at this market is quoted at 20 cents for prime. English refined oil is strong, and, with Egyptian seed 1s. 3d. per ton higher, a corresponding improvement in oil is probable. Egyptian seed is quoted in London at £5 per ton, April delivery, and since January 1 12,316 tons arrived, against 16,728 tons for corresponding time last year. Receipts of oil at this market have been limited during the week under review, 3250 barrels having been reported, and exports 7890, representing in the main the closing of old contracts.

Cake and meal are held for export in New Orleans at \$19.50 to \$19.75, but an improved inquiry from abroad has strengthened the position, and \$20 is quoted for summer shipments. At the moment the demand is dull, with regard to domestic needs, whether for stock-feeding or fertilizer purposes. Cotton cake and meal in England just now is the cheapest mill-feeding stuff on the market, especially when their combined feeding and manurial value are considered.

Cottonseed-Oil Notes.

Mr. Fred Oliver, of the Charlotte Oil & Fertilizer Co., of Charlotte, N. C., closed a deal last week with the North Carolina Cottonseed Oil Mill. He purchased all of the cottonseed meal and husks on hand, which represented in cash \$5000.

The steamship Montezuma cleared last week from Galveston, Texas, with 250 barrels of cottonseed oil among her cargo;

steamship Getivara for Hamburg with 16,680 sacks of cottonseed meal, and steamship Barden Tower for the same port with 8360 sacks of cottonseed meal and other cargo.

Cottonseed products in Texas are generally firm, especially for forward deliveries of oil. Exports foreign of cottonseed cake and meal continue liberal. Prices f. o. b. mill at interior points in the State range as follows: Prime crude oil, loose, 15 to 15 $\frac{1}{2}$ cents per gallon, and prime summer yellow oil is offered at 17 cents; cottonseed cake and meal, \$15 to \$16.50 per short ton, and linters, per pound, 2 $\frac{1}{2}$ cents.

There is a good foreign demand for cottonseed products at New Orleans, and cottonseed oil for future delivery is firm. Exports of cake and meal to Liverpool and Rotterdam during the past week have been liberal in volume. Prices continue to show no material change. Receivers' priors are quoted as follows: Cottonseed, \$7 per ton of 2000 pounds net to the mills, no commission of any kind to be added; cottonseed meal jobbing per carload at depot, \$17 per short ton of 2000 pounds; for export per long ton of 2240 pounds f. o. b., \$18.75; oil-cake for export, \$19 to \$19.25 per long ton f. o. b.; crude cottonseed oil at wholesale or for shipment, strictly prime oil, crude, 16 cents loose f. o. b. tanks at Mississippi valley points; in barrels, 18 to 18 $\frac{1}{2}$ cents; cottonseed hulls delivered per 100 pounds, according to location of mill, 12 to 17 $\frac{1}{2}$ cents; linters, according to style and staple—A, 3 $\frac{1}{2}$ cents; B, 3 $\frac{1}{2}$ cents; C, 2 $\frac{1}{2}$ to 3 cents; ashes, none; refined cottonseed oil, prime in barrels per gallon at wholesale or for shipment, 21 $\frac{1}{2}$ to 22 cents for export.

Bicyclists everywhere will be interested in the article on the League of American Wheelmen, which appears in the April number of Frank Leslie's Popular Monthly. It is a well-written account of this great organization from its beginning in 1880, told by A. Cressy Morrison, who, until the recent election, was the first vice-president of the league. There are more than twenty very good illustrations, including portraits and groups of wheelmen. In the same number Senator James H. Kyle has an article on "The Statesmen of Jackson's Period," being the sixth paper in this magazine's series on Andrew Jackson. The Island of Martinique is interestingly described by Julius G. Tucker, United States consul at that place.

The Cotton Ginner's Journal, of Waco, Texas, which was established about a year ago, has met with deserved success in its chosen field. Coming, as it did, at a time when the need of such a special trade paper was generally acknowledged, it has entered to a rapidly increasing clientele. To ginners, cottonseed-oil-mill operators, compressor owners, spinners and growers of the fleecy staple the publication in question can be of constant value. In opening its second year the Journal issues 30,000 copies of its publication.

The Merchants' Exchange of St. Louis has practically made arrangements for another line of steamers on the Mississippi between St. Louis and New Orleans. Already one vessel has been purchased for the service, and it is expected that the boats will be in operation by May 1.

The only shipment of phosphate rock from Savannah during the month of February was the cargo of 2011 tons, taken by the steamer Essen for Hamburg.

PHOSPHATES.

Phosphate Markets.

Office Manufacturers' Record, Baltimore, Md., March 24.

The movement in phosphate rock is a shade better and during the week sales have been of greater volume, with the market steady and fairly active, in sympathy with other fertilizer ingredients. There is considerable activity at points of production and the work of development in nearly all sections is more encouraging. The South Carolina river miners are increasing their output and there is a good demand for rock, with prices unchanged. At the Florida ports shipments of phosphate rock are better, and at Fernandina there is a very active movement. Prices continue very steady, with a fair domestic and foreign inquiry. Stocks in both the land and pebble districts of Florida are light, and the output is not allowed to accumulate, the rock being shipped in most cases as fast as it is mined. The Tennessee phosphate miners are at present enjoying a good business, the shipments for the present month from the Mount Pleasant district being greatly in excess of last month. The freight market in New York was quiet last week and the volume of business rather light. The offering of phosphate steamers is not improved and rates are steady at the following business: British steamer Peter Burg, 1148 tons, from a Southern port to Hamburg with phosphate rock on private terms; British steamers King Arthur, 772, and Pocklington, 885 tons, from Fernandina to Glasgow with phosphate rock at 15s. 6d., April and May, respectively, and schooner James R. Talbot, 300 tons, from Cartaret to Bucksport with phosphate at \$1.25.

Fertilizer Ingredients.

The tone of the market for ammoniates has been fairly active during the past week and there has been considerable business developed in local circles. Tankage and dried blood are firmer in tone, owing to the limited offerings in the West. There is a good demand for material from Eastern buyers, and from Southern sources business has improved. Sulphate of ammonia is easy, with free offerings. Nitrate of soda is firm for spot and near deliveries.

The following table represents the prices current at this date:

Sulphate of ammonia (gas)	\$2.60	@	—
Nitrate of soda	1.75	@	1.80
Blood	1.72 $\frac{1}{2}$	@	—
Hoof meal	1.65	@	—
Azotine (sheep)	1.77 $\frac{1}{2}$	@	—
Azotine (pork)	1.77 $\frac{1}{2}$	@	—
Tankage (concentrated)	1.65	@	—
Tankage (9 and 20)	1.67 $\frac{1}{2}$	@	10
Tankage (7 and 30)	15.00	@	15.50
Fish (dry)	20.00	@	—
Fish (fleld)	12.00	@	—

Phosphate and Fertilizer Notes.

The British steamship Ilaro cleared last week from Pensacola, Fla., with 1560 tons of phosphate rock for Venice, by the Gulf Transit Co.

The British steamer Thomas Melville arrived at Fernandina, Fla., on the 16th inst. from New York and loaded 2400 tons of phosphate rock for the Dunellen Phosphate Co.

The following clearances were reported last week from the port of Charleston, S. C.: Schooner Ella M. Willey for Weymouth, Mass., with 1140 tons of phosphate rock; schooner Fannie Brown for Richmond, Va., with 740 tons of phosphate rock, and schooner Mary Curtis for the same port with 570 tons. The total shipments from Charleston from September 1, 1897, to March 18 amounted to 52,992 tons of phosphate rock to domestic ports, against 52,612 tons for the corresponding period last year.

LUMBER.

[A complete record of new mills and building operations in the South will be found in the Construction Department.]

LUMBER MARKET REVIEWS.**Baltimore.**

Office Manufacturers' Record,

Baltimore, Md., March 24.

In lumber circles there has been a fair demand during the past week and the market is about steady, with no material change in values. Receipts of yellow pine have been moderate and stocks at present are fully ample for the demand. Box-makers, yardmen and builders have been in the market this week, but are only buying in small lots to satisfy present wants. Edge flooring and joists and scantling are selling freely and prices are nominally steady. The foreign demand for kiln-dried North Carolina yellow pine is still active and both here and at Norfolk shipments have been liberal during the present month. There is also a good domestic inquiry for kiln-dried lumber. In white pine some good sales are reported and the market is firm, with a fair demand from out-of-town buyers. Cypress is quiet, with prices steady. The hardwood market is better, there being a good local demand from furniture manufacturers and also a good inquiry from out-of-town buyers. Good dry oak is firm, with stocks very light. Poplar is dull, with a light inquiry. The export movement is improving and some good orders from Great Britain and the Continent have been received during the week.

Norfolk.

[From our own Correspondent.]

Norfolk, Va., March 21.

This has been one of the most active months of the first quarter of the present year, and the general business of the port of Norfolk has been of liberal volume. In the general activity the lumber industry has continued to show material improvement in nearly all the avenues of trade, and the market at the moment may be written firm, with the demand increasing. Manufacturers of all wood products are greatly encouraged by present indications, and the domestic as well as the foreign inquiry for North Carolina pine is now of such a character that mills are generally taxed, in some cases to their utmost, to fill orders. The foreign demand for yellow pine, which is now of great importance, continues to increase, and in the markets of Great Britain the popularity of this wood is growing and the demand increasing as its merits become known. The coastwise trade is at the moment very satisfactory, and there is a good trade with Northern markets, prices having shown an advance of \$1 per thousand in New York during the present month. The demand for box lumber is good, and stocks are not allowed to accumulate; on the other hand, all good grades of box lumber are sold as fast as cut. Among all wood-working concerns, both here and at adjacent points, there is a good trade in progress; planing mills are all very busy, and expect a first-class spring business. Shipments for the current month will be in excess of those of February, and the general conditions in all departments of the lumber trade are favorable for considerable business during April and May. The building trade is at present showing considerable activity, and architects and contractors have all they can attend to at present. Private residences and warehouses are being erected, and waterfront improvements are in process of construction, so that the quantity of lumber and timber going into consumption from

these sources is considerable. The freight market is a shade easier as to rates, while there is a fair offering of desirable tonnage. The schooner Lizzie Carr, 272 tons, was chartered in New York today to load lumber at this port for that city at \$2.25.

Charleston.

[From our own Correspondent.]

Charleston, S. C., March 21.

There is considerable improvement in nearly all departments of the lumber and woodworking industry of this port. The demand for lumber is much better than it was thirty days ago, and the volume of business in nearly every line of woodworking is of a more expanded character. Saw mills at all nearby points in this State are now fully employed, and orders have been coming in very freely during the present month. In the list of values the tone is firm for all desirable material, and for common and inferior stuff prices still hold steady. At the close of business on Saturday last merchantable lumber was quoted at \$14 to \$16 for city-sawed, \$12 to \$14 for railroad; square and sound, \$9 to \$13 for railroad, \$8 to \$11 for raft; dock timber is quoted \$4.50 to \$6.50; shipping, \$8.50 to \$10.50. There is a good demand for shingles at \$4 to \$7 per thousand. The shipments during the week were heavier than usual, the following vessels clearing with full cargoes: For New York schooners Nelson E. Newberry with 540,000 feet of lumber; D. K. Baker with 350,000 feet; Clara E. Bergen with 367,920 feet; J. H. Parker with 400,000 feet; John C. Guyon with 241,000 feet; B. I. Hazard with 205,600 feet. The schooner John G. Schmidt cleared for Philadelphia with 350,000 feet of lumber, and schooner Harriet C. Kerlin for Baltimore with 375,000 feet. The total shipments coastwise of wood products since September 1, 1897, amount to 27,940,740 feet, and foreign shipments to 550,000 feet, making a total of 28,490,740 feet, against 32,490,564 feet last year. There is a better inquiry for handy-sized vessels, and rates on lumber are firmer. To New York rates are quoted at \$4.38 to \$4.50; wet ties to Perth Amboy, 15 cents each, basis forty-six feet; dry railroad ties to New York, 11½ cents each, basis thirty-six feet; lumber to Fall River, \$4.50.

Savannah.

[From our own Correspondent.]

Savannah, Ga., March 21.

The week under review has shown a fairly active demand for lumber and other wood products. At all adjacent ports of Georgia there is an increased activity, and shipments continue good, while at interior milling points the movement in all wood products is active. Prices are generally firm for all desirable grades of lumber, and for common and inferior stock values hold up remarkably well. Stocks are generally light, and the demand in some cases is so urgent that mills have all they can do to fill orders on file. The crosstie industry shows up much better, and there is an active demand from railroads, while shipments to the North are of better volume. During the past week the following clearances were reported: Schooner Douglas Gregory for Philadelphia with 211,167 feet of pitch-pine lumber and 6425 crossties measuring 286,716 feet, and schooner George Taulane for the same port with 368,062 feet of lumber. The barkentine Albert Schultz cleared for New York with 374,707 feet of lumber, and steamers for New York took out 385,960 feet. The schooner Charles Sprague cleared for Fall River with 217,828 feet of lumber; schooner Thomas A. Ward for Perth

Amboy with 618,707 feet; schooner Morris Child for Baltimore with 345,284 feet, and schooner Nellie W. Howlett for the same port with 426,400 feet. Boston steamers took out 123,000 feet of lumber and Baltimore steamers 138,960 feet. Lumber and timber freights continue firm and unchanged. The rates from this and nearby ports of Georgia are quoted at \$4 to \$4.50 for a range including Baltimore and Portland Me. Among the charters reported in New York last week were the following: Schooner Annie L. Henderson, 407 tons, from Brunswick, Ga., to Portland, Me., with lumber at \$4.87½; schooner Stella B. Kaplan, 1024 tons, from Brunswick to Boston with crossties at 15½ cents, and schooner Louis G. Rabel, 525 tons, from St. Simons to New York with lumber at \$4.62½. The schooner J. K. Stetson was chartered today in New York to load kiln-dried cypress lumber here for that city on private terms.

Lumber Notes.

The Old Dominion Planing Mill property in Petersburg, Va., was sold last week at public auction to W. L. Davis, of Gloucester county, Virginia, for \$3950.

The Augusta Novelty Manufacturing Co., care of F. C. Dos Passos, 832 Broad street, Augusta, Ga., wants to contract for hardwoods to be shipped from some point near Augusta.

Mr. W. O. Stamps has selected and purchased a site for his hardwood factory, which will be located at Greenville, Texas. The work of erecting buildings will commence at once.

The Massee Lumber Co., of Macon, Ga., was incorporated last week with a capital stock of \$10,000. The incorporators are Messrs. H. B. Erminger, W. J. Massee and W. H. Woodson.

A charter was granted last week to the Gay Lumber Co., of Kinston, N. C., with a capital stock of \$50,000. The incorporators are J. W. Lynch, J. L. Gay and J. F. Hostetter, of Suffolk, Va.

The large lumber and shingle mills at Vidalia, Ga., owned and operated by W. L. Darby, were destroyed by fire on the 16th inst. The loss is estimated at several thousand dollars, with no insurance.

The Guilford Lumber Co., of Asheboro, N. C., will remove its saw-mill plant from that city to Troy, N. C. The company expects to begin operations at the new location about the first of May.

A fire in the lumber-yard of Ezra Canfield & Sons, at Williamsport, Pa., last week destroyed about 3,000,000 feet of lumber. Their saw mill was saved. The loss is estimated at \$50,000, with insurance \$20,000.

The Northern Mills Co., Limited, of Leesville, La., through their agent, purchased from Charles L. Pack, of Cleveland, O., 7000 acres of pine lands situated in Vernon parish, Louisiana. The consideration was \$56,000.

About 80,000 feet of yellow-pine lumber was shipped from Beaumont, Texas, on the 18th inst. to the East Indies via New Orleans and London. This is the first shipment of Texas lumber ever sent direct to that portion of the globe.

It is stated that Brooks Bros. & Co., of Waycross, Ga., will remove their lumber plant from Toledo, in Charleton county, to a point near Pensacola, Fla., early in April. The firm will do a general lumber, turpentine and crosstie business in Florida.

A plant for the manufacture of all wooden articles used in cotton mills will be erected in Huntsville, Ala., at once. Machinery for the proposed plant has already been shipped. It is stated that this

plant will likely be consolidated with the fiber factory in North Huntsville.

Morgan & Gardner's woodworking factory at Charleston, W. Va., which was destroyed by fire last spring and recently rebuilt, is now in full operation. The new plant embraces a saw mill, planing mill, furniture factory and warehouse, and is fitted with the latest appliances of woodworking machinery.

It is stated that extensive improvements are now being made in the plant of the Lookout Lumber Co., at Chattanooga, Tenn. A carload of planing-mill machinery has arrived and the work of placing it in position will commence at once. This company at present is said to be enjoying an excellent business.

It is stated that a lumber firm from New York State has purchased 1100 acres of timber land in Garrett county, Maryland, and will clear the same in one year, bringing 300 men with them for that purpose. The firm will build a wooden tramway to Sand Patch, on the Pittsburgh division of the Baltimore & Ohio Railroad, eight miles distant.

Mr. A. Delavigne, secretary of the Mechanics, Dealers and Lumbermen's Exchange, of New Orleans, reports the receipts of wood products in that city for the week ending March 18 as follows: Lumber, 1,651,000 feet; shingles, 280,000; oak staves, 806,276, and cypress staves, 60,000. The total receipts of lumber for the season amounts to 45,701,200 feet, against 40,133,000 feet last year.

The firm of Harris Cole & Bros., of Cedar Falls, Ia., has purchased from T. P. Ayres and J. H. Baird, of Nashville, 11,000 acres of timbered land in Wayne and Perry counties, on the Tennessee river, for a cash consideration of \$25,000. Harris Cole & Co. operate a large concern in Columbia, Tenn., and will remove their saw mill from that city at once, and will probably in the near future remove their entire plant.

Mr. J. Y. Harwick, State labor commissioner of North Carolina, in his report for the year 1897, shows 281 lumber and forty-two exclusively shingle mills in the State, with an output of 452,880,000 feet of lumber annually and 130,180,000 shingles, the total value being \$4,558,280. The commissioner says most sales of lumber are made at Baltimore, New York, Philadelphia and Washington, Philadelphia alone taking over 200,000,000 feet.

Among the shipments from Pensacola last week were the following: Bark Esperia for Genoa with 589,582 feet of lumber and 64,039 feet of sawn timber; bark Zippora for Garston Docks, England, with 590,040 feet of sawn timber and 38,000 feet of lumber; bark Olive Mount for Liverpool with 650,078 feet of sawn timber and 19,056 feet of lumber, and bark Anna Menotti for Genoa with 23,150 cubic feet of hewn timber and 336,701 feet of lumber.

Shipments of lumber last week from Fernandina, Fla., were active. The schooner Gen. Adelbert Ames cleared for New York with 357,000 feet of lumber, by Cooney, Eckstein & Co.; West Bros. cleared the schooner R. Bowers with 382,000 feet of lumber for Boston, and the Viola Rippard for the same port with 280,000 feet. The Drew Lumber Co. finished loading the large four-masted schooner Agnes Manning with 700,000 feet of lumber for Perth Amboy, N. J.

The railroad commission of North Carolina has refused to reverse its action regarding passenger fares on railroads in that State, and the matter will probably be taken to the courts.

MECHANICAL.

CHARLESTON'S BICYCLE FACTORY

Activity of a New Industry in South Carolina's Emporium.

[Special Cor. Manufacturers' Record.]

Charleston, S. C., March 22.

One of the most interesting industries in the Southeastern States, and the only one of its kind in that territory, is the bicycle manufactory of the Southern Cycle Supply Co., of Charleston, S. C. The Manufacturers' Record has repeatedly urged the importance of manufacturing bicycles in the South, and the success of this company promises to fulfill the predictions made as to the opportunity in this section for this industry. This company was incorporated early last year, and has already done a large wholesale business with the cycle dealers in the South, supplying them with cycle parts, fittings and sundries from the principal manufacturers of bicycle parts of the North and West. Recently this company has entered upon the manufacture of bicycles on an extensive scale, having transferred to Charleston the plant, machinery and stock which it had purchased from the Standley Cycle Manufacturing Co., of New York city. Already large orders have been received, and the Southern Cycle Supply Co.'s workshops present the appearance of great activity.

To those who are familiar with the extraordinary advantages the South offers to manufacturers the following interesting remarks of the energetic secretary, Mr. Frank T. Kintzing, will not be questioned: "We are," he says, "in a position to furnish a bicycle complete at a lower cost than in any other part of the United States today. Labor, and by that I mean skilled labor, can be worked to greater advantage than in any other city I know of, and in other respects we effect a saving which our manufacturing brethren of the North cannot accomplish. For instance, we have this large factory building at a nominal rental, and, thanks to our Southern climate, it is quite unnecessary to make provision for the heating of the factory, an item of considerable expense in the North. Again, living is much cheaper in this section, and workmen live more comfortably on a smaller income; thus it will be obvious that the Southern manufacturer possesses advantages far superior to those of the North.

"Our shipping facilities, thanks to the excellent and economical service of the Clyde Line of steamers, bring the freight to a minimum, and we are enabled to manufacture and transport our bicycles at a very low cost. For instance, our 'Army' wheel, which is a high-grade bicycle at a very low price, is rendered possible only by the economical local conditions."

The bicycle factory of the Southern Cycle Supply Co. is situated on Broad street and State street, and is admirably adapted to its purpose. It is a three-story building of L shape, well lighted in every part. The work is so arranged that the raw material is stored at one end of the building, and, going through the various workshops, comes out a finished bicycle at the other end or shipping department.

The process of cycle manufacturing by this company is so interesting as to be worthy of description here.

In the company's storerooms large quantities of steel tubing of different diameters, gauges, etc., are stocked. This tubing, made of the finest steel, cold drawn and weldless, is cut into the various lengths necessary for making the main frame of the bicycle, also handle bars and fork sides. In another portion of the storeroom are the various connecting parts or fittings, stampings and forgings, and these, after the tubing has been cut to the exact length for the frames, are brazed together, after which they are placed in what are called building "jigs," where any inaccuracies of the workmen during the process of pinning and brazing are corrected.

These frames are then carefully filed and cleaned and sent to the enameling room, where they are given several coats of enamel (generally four) of almost any conceivable color, after which they are hung up on hooks in the ceiling in large numbers to keep them out of harm's way, awaiting the orders which arrive daily from the traveling salesmen for bicycles, specifying certain colors and various equipments. The next department is the wheel-building rooms, where the spokes are affixed to the hubs and wood rims, aided by ingenious labor-saving machinery, which holds the rim and hub and spokes in exact position. The work of building up wheels is carried on with almost incredible rapidity. These wheels when completed are stored up in the same manner as the frames, and are ready waiting for the demand of the assembling staff. The next and perhaps the most interesting exhibit in the building is the polishing and nickel-plating room. Here all the bright parts of a bicycle, handle bars, cranks, etc., are buffed and polished to a beautiful finish, then placed in a copper electroplating bath, after which they are heavily nickel plated.

This work is the kind that calls for considerable skill and experience, and it is worthy of note that the management point with pride to the fact that their fellow-workers in every department are all Charlestonians and emulate each other in their enthusiasm and desire to make this bicycle manufactured in Charleston a grand success.

Having gone through the various manufacturing departments, the assembling room is reached. This is where the various equipments as ordered to be placed on each bicycle are carefully selected. Here the saddles, pedals, chains, handle bars, tool bags, etc., are fitted to the machine, and then, after all the work has been done, it is subjected to the most critical test of all, viz.: the inspection department. If it should pass the eye of the inspector (and there is no favor in this work), the "Army" bicycle is then tagged, and, bearing the inscription "Nihil obstat," is pushed along to the shipping department, where it is encased in a crate, and from there goes on its way to rejoice the heart of the fortunate possessor of an "Army" bicycle.

It will not surprise our readers to learn from a perusal of the foregoing that the management of the Southern Cycle Supply Co. is in the hands of men who are both energetic and experienced in every department of the business. The president, Mr. W. H. Welch, is also president of the Business Men's League, and one of the most public-spirited men in Charleston.

Paints for Factory Interiors.

In the selection of paints for factory interiors, especially for rooms in which numerous operatives are daily employed, a few considerations stand forth prominent: First, that the color shall be bright, cheerful and permanent, and at the same time restful to the eye; second, that the material shall be so durable that frequent renewal will be unnecessary; and, third, that it shall be of such

nature that it cannot injuriously affect the health of the employees.

It is true that in many factories white-wash or kalsomine is employed for coating the walls proper, and if it be a simple preparation of lime or gypsum, without size, which is subject to putrefaction, there is no objection to the material except its extreme permeability to moisture. However, generally speaking, it is more satisfactory, as it is certainly neater, to paint the interiors of working rooms, especially those of cotton and woolen mills, with oil paint.

For this purpose the wall should be smooth-coated, as, one of the objects of painting being to diffuse and economize light, a smooth surface absorbs a far smaller proportion of the light falling upon it than will a rough surface. The same consideration holds good as explaining the superiority of a glossy oil paint over a dull kalsomine or wall finish.

Painters have various formulas for the priming of walls to stop absorption, but the favorite materials are glue size, shellac and boiled linseed oil or "drying" oil. The first named of these materials does not make a good basis for oil painting; the second is fairly satisfactory, but rather expensive, while the third is entirely satisfactory if the oil be pure, and is still more effective if there be added to it a fair proportion of zinc white, bringing its consistency up to that of a thin paint. There are also to be found in the market many "liquid fillers" and "primers" which are moderate in cost and generally serve very well for this use.

Bearing in mind the object and conditions of wall painting, the paint remains to be selected. For general use three classes of materials are found in the market—pure white lead in oil, ready-mixed or liquid paints, and various combination paints in paste form. The second-named class are sold ready for use, the other two requiring the addition of oil, while the lead generally needs also a certain proportion of turpentine.

The liquid paints bearing the name of any well-known manufacturer are generally satisfactory, their price being taken into consideration, and such of them as are based on zinc white hold their color very well. The same can be said generally of the combination paints, some of which are sold as lead. They are commonly based on zinc white, with a certain proportion of lead to increase their opacity and a percentage of inert materials, such as barytes, to decrease cost and to dilute the lead.

For several reasons I should argue that pure lead is not suitable for the purpose in view. First, it darkens rapidly in the presence of the sulphurous gases which are always present; second, it is not comparatively a durable pigment, having a tendency to saponify the oil with which it is combined and to crumble from the surface; and, third, being a poison of considerable cumulative power, the lead dust thus disengaged is likely to affect the health of those working in its presence more or less seriously.

The one white paint material to which none of these objections apply is oxide of zinc or zinc white. There are no objections to using it pure on interiors. It carries a very high percentage of oil, and therefore is exceptionally durable; its color is a pure brilliant white, which remains unchanged indefinitely, and it is absolutely non-poisonous. Furthermore, its great oil-carrying capacity gives it a high and permanent gloss, which is very valuable in diffusing the light in factory interiors. Pure zinc, however, having no action on linseed oil, is a very slow drier, and requires the addition of manganese driers. Thus it may happen that paint-

ers unaccustomed to handling it may leave a poor job.

On general principles, the combination paints are preferable to all other materials for ordinary use. They commonly contain enough zinc to insure reasonable permanence of color, and an oil-carrying capacity high enough to guard against crumbling. The lead they contain is sufficiently diluted to have little effect on the oil, and the larger proportion of oil protects the lead from the action of discoloring gases. Such paints are very economical, usually costing less per pound than the pure materials, and covering far more surface than any of them excepting pure zinc, which spreads farther than any other white pigment.

It is a common practice to paint factory interiors pure white, but it is a serious question whether something would not be gained in actual efficiency of the employees by using a pleasing tint instead. The effect of colors on the nervous system is an obscure question but little studied, but there certainly is such an effect. It costs almost nothing to add to the white paint a slight percentage of ultramarine blue, burnt sienna, raw sienna, or possibly better still, a combination of the first and the last, producing a restful green. The effect will certainly be pleasing, if nothing more.

Two, and, if necessary, three coats of paint should be applied over the priming material, allowing each coat to dry thoroughly before applying the next, and a job thus done with good combination paint will last for many years, being washable when it becomes soiled with dust or smoke.

STANTON DUDLEY.

TRADE NOTES.

Coal Lands.—T. G. Bush, Anniston, Ala., is offering 8000 acres of Alabama coal lands for sale.

Machinery for Sale.—Messrs. Thomas C. Bassett & Co., 28 Light street, Baltimore, Md., are offering for sale two nearly new Allis compound tandem Corliss engines. For specifications see advertisement.

Feed-water Heaters.—The Boston Electric Light Co., of Boston, Mass., has ordered eight National feed-water heaters, as made by the National Pipe Bending Co., of New Haven, Conn., aggregating 18,000 horsepower.

Edward J. Etting.—The offices of Edward J. Etting in the Fidelity Building, Philadelphia, Pa., have been removed to the Land Title Building, Broad and Chestnut streets. Mr. Etting deals in iron and steel, besides representing well-known rail, pig-iron and fire-brick makers.

Increasing Export Business.—The export business of the Davis & Egan Machine Tool Co., of Cincinnati, O., is steadily increasing. Last week the company received orders from Moorgate, England; Erith, England, and Stettin, Germany. Domestic orders are also coming in freely.

Recent sales by the Fred W. Wolf Co., of Chicago, Ill., included a 60-ton ice plant at Philadelphia, two Baudelot coolers at Rotterdam (Holland), six-ton refrigerating plant at Springfield, Mo., 12-ton refrigerating plant at Hastings, Neb., 25-ton ammonia condenser at Hannibal, Mo., 100-ton ice plant at New York.

General Engineering Firm.—Mr. G. Whitefield Chance, C. E., conducts a general engineering, contracting and power-installation business, making a specialty of steam and electric railroads. His offices are at 915 Rothschild's Building, 14 South Broad street, Philadelphia, Pa. Southern representative is Mr. M. A. Agelasto, 27 Plume street, Norfolk, Va.

Ball Engines.—Ball engines have recently been placed as follows: Two of 100 horsepower, direct connected with Siemens-Halske dynamo, in electric plant at Columbus, O.; electric-plant battery for steamboat now building at Detroit, and a 450-horse-power engine for steel plant at New Castle, Pa. The Ball engines are the product of the Ball Engine Co., of Erie, Pa.

CONSTRUCTION DEPARTMENT.

THE MANUFACTURERS' RECORD
 seeks to verify every item reported in its Construction Department by a full investigation and complete correspondence with everyone interested. But it is often impossible to do this before the item must be printed, or else lose its value as news. In such cases the statements are always made as "rumored" or "reported," and not as positive items of news. If our readers will note these points they will see the necessity of the discrimination, and they will avoid accepting as a certainty matters that we explicitly state are "reports" or "rumors" only. We are always glad to have our attention called to any errors that may occur.

*Means machinery, proposals or supplies are wanted, particulars of which will be found under head of "Machinery Wanted."

In correspondence relating to matters reported in this paper, it will be of advantage to all concerned if it is stated that the information was gained from the Manufacturers' Record.

It often occurs that the organization of a new company in any town is not known by the postmaster, and hence letters addressed to the company are returned marked "not known." The Manufacturers' Record reports the first organization of all companies, and our readers, in seeking to get into communication with them, should be very careful in deciding how to address them, and even then they must expect the return of some letters, because of the lack of knowledge on the part of postmasters of all new companies. Criticisms and complaints are invited, as they will better enable us to guard against errors.

ALABAMA.

Anniston—Net and Twine Factory.—The Anniston Net & Twine Co. has decided to double its working force, employing 100 new operatives, and increase its output to 50,000 pounds per week.

Birmingham—By-product Works.—A dispatch from Birmingham states that the Sloss Iron & Steel Co. has let contract to the Semet-Solvay Co., now building a half-million-dollar by-product plant at Ensley City, for the construction of a similar plant at the Sloss furnace in Birmingham. Gas, ammonia, coke, tar and the like will be produced from coal and utilized by various industries.

Decatur—Machine Shops.—The Louisville & Nashville Railroad Co. has had plans prepared for enlarging its machine shops, which will double the capacity of same, employing 150 additional hands; it is also said that other parts of the plant will be enlarged, which will almost double the present working force, now about 950 operatives. Address J. G. Metcalfe, general manager, Louisville, Ky.

Gurley—Woodworking Plant.—W. T. Roberts has established a plant for the manufacture of handles, spokes and wooden articles for farming implements.

Huntsville—Cotton-mill Supply Factory.—A plant for the manufacture of wooden articles for cotton mills will be erected to employ about twenty-five operatives; machinery has all been contracted for; names of interested parties will be announced later.

Larkinsville—Coal and Iron Mines.—A company has been organized by Chicago (Ill.) capitalists for the development of coal and iron deposits in the Cumberland mountains, near Larkinsville. Names of interested parties will be announced later.

Mobile—Docks and Slips.—The Mobile & Ohio Railroad Co. has purchased 1000 feet of additional river frontage for \$37,500 and will proceed to build other slips and docks. Address for further information the general manager, J. G. Mann, at Mobile.

Montgomery—Cooperage.—The Montgomery Cooperage Co. has contracted with Taylor Bros. for the erection of 100x50-foot ad-

dition to its plant. Address W. T. Riley, president.

Sheffield—Water-power Development, Electric Plant, etc.—A. F. Walker, of Atlanta, Ga., is making surveys for the proposed electric heat, light and power plant recently reported as to be erected by the Muscle Shoals Co. at a point about eight miles above Sheffield and Florence.

ARKANSAS.

Batesville—Water Works.—The city will construct a system of water works at a cost of \$25,000. Address Robert Neill, C. R. Handford or William Ramsey.*

Chidester—Saw Mill.—T. B. Green will add saw mill to his gin and grist mill. Little Rock—Gin and Milling Company.—Chartered: The Breckinridge Gin & Milling Co., of Jackson county, with a capital stock of \$6000, by John W. Ferrell, George J. Clement and James Davis.

Pine Bluff—Electric-light Plant.—The city has contracted with Wilber Harrison, of Anderson, Ind., and Nat Covington, of Peru, Ind., for the erection of an electric-light plant. Address W. P. Grace, Room 7 and 9, No. 110½ Main street, Pine Bluff, Ark.

Stuttgart—Electric-light Plant and Water Works.—Charles Williams, Joseph Parks and B. P. Williams have incorporated the Stuttgart Water & Electric Light Co., with a capital stock of \$10,000.

FLORIDA.

Ocala—Agricultural-implement Factory.—The Lightning Hoe Co. has been incorporated by Edward Holder, Decatur W. Davis and Charles M. Brown, with capital stock of \$30,000, for the manufacture of hoes and other agricultural implements and to conduct a general manufacturing business.

Pensacola—Mining Company.—The Mount Morgan Mining Co. has been incorporated, with a capital stock of \$125,000, to purchase, sell and operate mining properties and sell the products thereof: incorporators, E. F. Skinner, R. M. Cary, Jr., and H. H. Boyer.

Starke—Electric-light Plant and Water Works.—The city will probably hold an election to determine the issuance of bonds for the erection of an electric-light plant and construction of water works. Address the mayor.

Tampa—Cigar Factory.—Faustino Lozano is negotiating for site on Twenty-second street on which to erect a cigar factory.

Tampa—Cigar Factory.—Mr. Lartigue, of Chicago, Ill., is making preparations for the removal of a cigar factory to Tampa, and has secured building at Franklin and Lafayette streets.

Tampa—Water Works.—The city will hold an election May 3 to determine the issuance of \$200,000 of bonds for the construction of a system of water works. Address M. E. Gillett, mayor.

GEORGIA.

Adams Stills.—A. C. McLennan & Co. will rebuild at once their burned stills; cost of burned plant \$3000.

Arlington—Oil and Fertilizer Company.—The Arlington Oil & Fertilizer Co. has increased its capital stock to \$30,000.

Atlanta—Coca Cola Factory.—The Coca Cola Co. will erect a new factory building at once, as stated last week; structure to be three stories high, cost \$15,000, and be fully equipped for manufacturing and with offices.

Atlanta—Water Works.—The election to vote on the issuance of \$200,000 of bonds for the extension of the water-works mains will be held April 21. Address George Hillyer, president water works board.

Augusta—Copper Mines.—The Georgia Mining & Manufacturing Co. has been incorporated, with a capital stock of \$150,000, by W. H. Warren, C. A. Robbe, E. F. Verder, William E. Jackson, J. Hardwick Jackson and others, for the development of copper mines. Address J. Hardwick Jackson, Room 420, Dyer Building.*

Barnesville—Knitting Mill.—The Oxford (not Eagle) Knitting Mills has organized, as recently noted, and will establish its plant at once, as announced; will employ seventy-five people, producing 250 to 300 dozen per day. The J. C. Collier Co., of Barnesville, furnishes \$7500 of the capital of this company, and a New York firm supplies the other half. Address J. C. Collier.

Buena Vista—Water Works.—The city is considering the advisability of supplying the

town with water from some large spring by means of a hydraulic ram; contract will probably be closed at the next meeting of the city council. Address the mayor.

Dahlonega—Gold Mines.—S. M. Whorton, of Spokane, Washington, has purchased the Calhoun gold property of the trustees of the N. G. A. College for the sum of \$10,000; John Huff will commence at once to develop the property and possibly erect two 10-stamp mills. For information address John Huff.

Dahlonega—Gold Mines.—S. M. Whorton, of Spokane, Washington, has leased the Free Jim property near Dahlonega, and will commence the development of gold mines under the supervision of E. E. Crissom, who may be addressed for information.

Dublin—Furniture Factory.—The Dublin Furniture Manufacturing Co., composed of Jacob Zaff, J. E. Smith, Jr., and T. H. Overby, is constructing its large factory, which will be in operation in about sixty days, employing about 100 operatives; the company will apply for charter.

Dublin—Curry-comb and Broom Factory.—E. F. Fuller & Sons, of Perry, Ga., will erect a building in Dublin and remove their curry-comb and broom factory to Dublin, and will greatly enlarge same; they also contemplate the manufacture of fruit crates.

Elberton—Cotton Mill.—The Pearl Cotton Mills will put in 1000 additional spindles; machinery contracted for.

Gainesville—Brick Works.—J. M. Hubbard has purchased an interest in the Wheeler Brick Works, the capacity of which has been doubled, new brick molds and other machinery being put in. Address George R. Wheeler, proprietor.

Macon—Lumber Company.—W. J. Massee, H. B. Erminger and W. H. Woodson have incorporated the Massee Lumber Co., with a capital stock of \$10,000, to conduct a general lumber business, erect and operate saw mills, etc. Address W. J. Massee.

Montezuma—Bridge.—An election will be held April 21 to determine the issuance of \$15,000 of bonds for the construction of a bridge across the Flint river between Oglethorpe and Montezuma. Address A. H. Perry, county clerk.

Moultrie—Telephone System.—J. F. Monk, W. H. Barber and others have received franchise for construction of telephone system and will incorporate a company for the purpose.

KENTUCKY.

Livermore—Manufacturing Plant.—A. Seeno & Co., of Cincinnati, O., will erect a manufacturing plant in Livermore to use beech timber exclusively; the main buildings will be two structures each 600x50 feet.

Livermore—Barrel Factory.—A large barrel manufacturing company of Defiance, O., is investigating with a view of removing its plant to Livermore. Names of interested parties will be announced later.

Livermore—Saw Mill.—The Acker Lumber Co., of Grasscreek, Ind., has purchased the plant of the Standard Wheel Co. at Livermore and will convert same into a saw mill, removing its saw-mill plant to this place; about thirty operatives will be employed.

Louisville—Vaccine, etc., Company.—Incorporated: The American Cholera Vaccine Co., by John E. Cassin, W. D. Lewis and Frank T. Elseman, with a capital stock of \$10,000, for the manufacture and sale of vaccines and antitoxines.

Marion—Electric-light Plant.—C. S. Nunn & Co. will construct a plant for electric lighting.*

Paducah—Hardwood Factory.—J. K. Ferguson and Earl Palmer, of Fort Wayne, Ind., contemplate the establishment of a hardwood factory in Paducah.

Springfield—Water Works.—J. A. Holmboe, of Louisville, Ky., will submit plans and propositions on March 30 relative to purchasing franchise for construction of a system of water works. Address the mayor for information.

LOUISIANA.

Alexandria—Sugar Refinery.—The Rapides Sugar Refinery, Limited, has been organized, with a capital stock of \$300,000, for the erection of an 800-ton sugar refinery near Alexandria, work on which will be commenced as soon as \$25,000 of the stock is subscribed. For information address F. M. Welch.

Crowley—Telegraph System.—The city has

granted an ordinance to the Postal Telegraph Cable Co. of Texas, authorizing the construction and operation of a telegraph system in Crowley. Address J. E. Barry, mayor, for information.

Ibererville—Sugar Mill.—V. & J. A. Berthelot have contracted for a double-effect evaporating apparatus with a capacity to concentrate 150,000 gallons of cane juice every twenty-four hours.

Jeanerette—Saw Mill.—The Planters' Saw Mill Co. is putting in new machinery for its mill and erecting new buildings.

Lafayette—Sugar Refinery.—S. Gumble & Co., of New Orleans, La., have made final arrangements for extensive repairs to their central refinery, located near Lafayette. The capacity of the mill will be 1000 tons per day, and all the machinery will be of modern and improved make. Address Horace Gumbel, care of the firm, at New Orleans.

Leesville—Saw Mill, etc.—The Nona Mills Co., Limited, has been incorporated with F. L. Carroll, president; G. R. Ferguson, vice-president, and J. N. Gilbert, secretary-treasurer. The company has secured extensive bodies of land in Vernon parish and will at a later date remove its saw mills to the property. The capital stock is \$100,000.

New Orleans—Mattress and Spring-bed Factory.—The Southern Mattress & Spring Bed Manufacturing Co. has been organized to establish a plant for the manufacture of mattresses and spring beds, excelsior, etc. Address P. O. Box 454.*

St. Bernard—Sugar Refinery.—English capitalists have negotiated successfully the purchase of several thousand acres of land in and about St. Bernard and will erect a sugar factory on the Kenilworth plantation. P. Campbell, general manager of the Louisiana Southern Railway, New Orleans, La., can be addressed for information.

St. James—Sugar Mill.—Pugh & Himmel have purchased an additional outfit for their sugar-house.

MARYLAND.

Baltimore—Tinware Factory.—Keen & Haggerty have commenced rebuilding their tinware factory, recently burned; burned plant was valued at \$60,000.

Baltimore—Electric-light and Power Company.—Harry Heidel, William H. Mathai and James O. Bates, of Baltimore county; John W. Lowe, James C. Doyle, Theodore M. Caster and John W. King, of Baltimore, have incorporated the Electric Power & Light Co., of Baltimore county, to lay wires in the county for transmission of electricity for heating, lighting or motive purposes; capital stock is \$25,000.

Baltimore—Spice Mill.—Mc Cormick & Co. have leased building and put in a complete plant for spice mill, consisting of 35-horsepower engine, crushers, burr mills and mustard presses. Address the firm at 44 South Charles street.

Baltimore—Laundry.—The Swiss Manufacturing Co., mentioned last week as incorporated, has organized, with John W. Lowe, president; G. A. Klinefelter, vice-president and treasurer; O. C. Chenoweth, secretary, and G. A. Rogers, general manager. The company will occupy a six-story building 50x100 feet on Greene street and will employ from 175 to 200 operatives; plant to be put in operation about April 1; paid-up capital \$50,000. Address G. A. Klinefelter, vice-president, 513 West Lexington street.

Barton—Coal Mines.—The Piedmont Mining Co., reported in this issue under Piedmont, W. Va., has secured a tract of coal land near Barton, which it will develop at once.

Chestertown—Fire Company.—The Chestertown Fire Co. has organized with John K. Aldridge, president; C. S. Smith and Walter U. Lusk, vice-presidents, and Wm. B. Uslton, Jr., secretary and treasurer.

Easton—Packing Plant.—The Easton Packing Co. has been incorporated with Joseph B. Harrington, president; L. S. Fleckstein, treasurer and general manager. The company has purchased the property of the Farmers' Packing Co., near Easton, and will continue the operation of same.

Princess Anne—Clothing Factory.—The Princess Anne Clothing Manufacturing Co. has been incorporated by Dr. Charles W. Walwright, Joshua W. Miles, H. Flimore Lankford, Robert F. Maddox and Wilmer E. O. Lankford, with a capital stock of \$10,000, for the immediate erection of a plant

for the manufacture of clothing; to be supplied with fifty sewing machines.

Rockhall-Industrial.—The Rockhall Co-operative Co. has been incorporated by G. E. Leary, Jeff Ayres, J. T. Arthur, J. E. Beck and others, with a capital stock of \$5000, for the purpose of erecting buildings for industrial purposes.

Rock Hall—Cannery.—H. L. Arthur, of Aberdeen, Md., will establish a cannery at Rock Hall, building for which will be erected by the Rock Hall Co-operative Co., at a cost of \$1000.

Smithsburg—Water Works.—M. M. Dreibellis, P. O. Box 15, Hamburg, Pa., is preparing plans for a system of water works. Address the mayor.

Tolechester Beach—Pumping Station.—The Tolechester Company will put in a steam pumping station. Address William C. Ellsworth, president, Light-street wharf, Baltimore, Md.

Washington, D. C.—Bicycle Company.—The Century Cycle Co. has been incorporated, with Chapin Brown, president, and Charles G. Watson, secretary, to conduct a general bicycle business; capital stock \$25,000.

MISSISSIPPI.

Forrest—Planing Mills.—The Russell Lumber Co. contemplates building a new planing mill.

Gulfport—Cannery.—B. F. Tyler is considering a proposition for the establishment of a cannery.

Hattiesburg—Soap Factory.—Mr. Bohn, representing a soap factory of Cincinnati, O., has closed a deal for site in Hattiesburg on which to erect a \$300,000 soap factory, which, when completed, will give employment to 200 or 300 operatives.

Jackson Rope Factory.—James G. Lyle (formerly of Wesson) is investigating with a view of establishing a rope factory.

Jackson Cotton-rope Mill.—T. McCelland and associates have organized a \$20,000 stock company to erect the rope factory recently noted as contemplated. The production of knit goods is also talked of.

Meridian—Paving.—An act has been introduced in the legislature to authorize the mayor and board of councilmen to issue \$20,000 of bonds for street paving with vitrified brick and for other purposes; E. H. Dial, mayor.

Wesson Electric-light Plant.—A committee has been appointed to investigate the advisability of the erection of an electric-light plant. Address H. M. Buckley, mayor.

MISSOURI.

California—Woolen Mills.—Chartered: The California Woolen Mills Co., by Frank Keneppe, Frank Hugelman and Peter Herfurth; capital stock \$15,000.

Clinton Coal and Coke Company.—The Jordan Coal & Coke Co. has been incorporated, with a capital stock of \$5000, by Jas. H. Sheldon, E. C. Morris and V. B. Bell.

Joplin Mining Company.—Chartered: The March Mining Co., by James Campbell, A. Baker, E. D. Porter and others; capital stock \$8000.

Joplin—Grocery Company.—The J. J. Graham Grocery Co. has been incorporated, with a capital stock of \$50,000, by J. J. Graham, J. A. Campbell, R. C. Graham and others. Address J. J. Graham.

Joplin—Lead and Zinc Mines.—The Hermit Mining Co. has been incorporated, with a capital stock of \$10,000, for the development of mines at Hell's Neck, by W. F. Hackney, W. B. C. Brown, of Kansas City; Henry F. Hoyt, of St. Paul; G. W. Hackney and O. H. Gray, of Springfield, Mo.

Kansas City—Specialty Company.—The Sieben Trap & Specialty Co. has been incorporated, with a capital stock of \$3000, to deal in patent grease and water traps, vent and backwater couplings and similar appliances; incorporators, Henry Sieben, C. E. Burnham, Benjamin Smith and L. M. Smith. Address Henry Sieben, city plumbing inspector.

Kirksville—Real Estate Company.—Chartered: The Kirksville Real Estate Co., by Warren Hamilton, W. G. Fout and H. M. Still. The capital stock is \$20,000.

Marsfield—Land and Fruit Company.—Mary J., John P. and Joel W. Hubble have incorporated the Hubble Land & Fruit Co., with a capital stock of \$10,000. Address Joel Hubble for information.

Springfield—Sash, Door and Lumber Factory.—Chartered: The Queen City Sash, Door & Lumber Co., with a capital stock of \$5000, by E. W. Culver, W. R. Pickering, J. D. Campbell and others.

St. Louis—Prospecting Company.—Char-

tered: The Bonnie Terre Prospecting Co., with a capital stock of \$31,000, by D. P. Deak, G. W. Chadbourne, James Green, Samuel H. West and others.

St. Louis—Ice and Coal Company.—The H. Tombrink Ice & Coal Co. has been incorporated, with a capital stock of \$10,000, by H. Tombrink, G. F. Wittkopp and others.

St. Louis—Confectionery Company.—J. Valerius, L. D. Moore and C. E. Rousseau have incorporated the St. Louis Novelty Confectionery Co., with a capital stock of \$5000.

St. Louis—Tailoring Company.—Chartered: The Cappells Tailoring Co., by Joseph Cappels and others; capital stock \$3500.

St. Louis—Laboratory Company.—Chartered: The Eady Laboratory Co., with a capital stock of \$5000, by E. A. Linn, W. P. Eberlein and Otto Buehrmann.

St. Louis—Carriage and Wagon Company.—Chartered: The Modern Wagon & Carriage Co., capital stock \$3600; incorporators, J. L. Fraeser, Thomas Sauerbrunn and others.

St. Louis—Real Estate Company.—Chartered: The Musick Real Estate Co., capital stock \$5000; incorporators, John N. Musick, C. G. Ette and W. H. Musick. Address the last named.

St. Louis—Cutlery Company.—The A. J. Jordan Cutlery Co. has been incorporated, with a capital stock of \$100,000, by C. D. Jordan, Augustus Maschmeyer and A. J. Jordan. Address the last named.

St. Louis—Mining Company.—The Missouri & Illinois Mining Co. has been incorporated, with a capital stock of \$15,000, by M. E. Sutton, B. F. Morris, Edward Trimble and others.

St. Louis—Boiler-cleaner and Water-purifier Company.—T. W. McManus, J. C. Burneson and S. T. Price have incorporated the Eureka Boiler Cleaner & Water Purifier Co., with a capital stock of \$10,000.

St. Louis—Flour Company.—Herman Bauer, Mathias Woelke and Andrew Bauer have incorporated the Bauer Flour Co., with a capital stock of \$40,000. Address Herman Bauer.

St. Louis—Coffin Factory.—Louis G. Kregel, reported last week as to erect a five-story coffin factory, has, with C. E. Baker and E. F. Holtgrewe, incorporated the Kregel Casket Co., with a capital stock of \$100,000. Address Louis G. Kregel, 4213 West Belle Place.

Wentworth—Concentrating Plant.—The Ramah Mining Co. has leased the Baker mine and plant and will erect a new concentrating plant of large capacity.

NORTH CAROLINA.

Asheboro—Woodworking Machine.—James V. Yuncannon has invented a patent cutter-head and knife for planing machine and will negotiate for its manufacture.*

Columbus—Planing Mill.—F. W. Stearns is adding a planing mill to his saw-mill plant.

Concord—Chlorinating Works.—A. Theis, of Haile gold mine, South Carolina, will shortly resume work at the Phoenix mine, near Concord, and establish chlorinating works.

Flat Rock—Hosiery Mill.—The Hart Manufacturing Co. has increased its capital stock from \$25,000 to \$50,000, in order to make improvements; a new building will be erected and about seventy-five knitting machines installed, thus doubling the present plant; P. W. Hart, treasurer.

Franklinville—Cotton and Flour Mills.—The Franklinville Manufacturing Co. has put in ten new big looms, two new spreaders and other machinery, also a system of automatic sprinklers, and has put a new roller-mill outfit of 80-barrel capacity in its flour and grist mill.

Goldsboro—Dry-kilns, etc.—The Goldsboro Lumber Co. is putting in a new dry-kiln at a cost of \$7000, and will put in a band saw to cut 40,000 feet per ten hours.

Kinston—Lumber Company.—Chartered: The Gray Lumber Co., with a capital stock of \$50,000.

Lynn—Knitting Mill.—L. N. Wilcox & Sons are erecting an addition to their knitting mill, which will be equipped as a finishing room.

Morehead City—Ice Factory.—The Turret Ice, Transportation & Storage Co., reported in our last issue as incorporated, etc., will put in a 10 or 15-ton ice machine, the capacity of which has not as yet been decided upon. Address Charles S. Wallace, secretary and treasurer of the company.*

Oxford—Gold Mines.—The Lewis gold mine, in Granville county, about eighteen miles from Oxford, is being developed, and

if developments prove satisfactory, the mines will be equipped upon a large scale and machinery erected for treating the ore. These mines are owned by E. B. C. Hambley, of North Carolina, and J. G. White, of New York.

Reidsville—Water Works.—H. E. Knox, Charlotte, N. C., is making surveys for the proposed water-works system. Address H. T. Williams, mayor.

Reidsville—Water Works.—The town is having a survey made to determine whether or not it will construct system of water works. J. B. Johnson, chairman water-works committee, can be addressed for information.

Rockingham—Cotton Mill.—Supplementing previous note regarding the new No. 2 mill of the Pee Dee Manufacturing Co., the company will install at first 4000 spindles, 200 plaid looms, steam-power plant, electric-light plant, automatic sprinkling system, etc., none of which machinery has yet been ordered; W. C. Leak, president.

Rockingham—Cotton Mill.—The Pee Dee Manufacturing Co. will build its No. 2 mill, heretofore noted, at once; plant to be equipped with 300 looms, carding, spinning and weaving machinery complete, and a dye-house.*

Salem—Grist Mill.—Spach Bros. & Hoover will erect a grist mill, building to cost \$3500 and machinery about \$3000; electricity will be used for power, furnished by the Fries Manufacturing & Power Co. [This item was reported last week under Raleigh by mistake.]

Southern Pines—Brick Works.—The Moore County Brick Co. has been organized and purchased brick works near Southern Pines; will increase the capacity of same. Address Wm. F. Junge, Southern Pines, N. C., for information.*

SOUTH CAROLINA.

Beaufort—Phosphate Works.—The Central Phosphate Co., J. Kramer, general manager, recently reported as incorporated for the development of mines, will erect plant for the manufacture of phosphates, etc. Address both at Beaufort, S. C., and Mount Pleasant, Tenn.*

Bishopville—Mercantile Company.—The Co-operative Grange Store has been incorporated, with J. W. English, president, and J. M. Smith, secretary, to conduct a general real estate, live stock and general mercantile business; capital stock \$2500.

Camden—Ice Plant.—The Camden Electric Light & Water Works Co. will put in machinery for the manufacture of ice.

Columbia—Electric-light Plant.—The People's Electric Light Co., recently reported as organized, has been incorporated with Frank Carpenter, of New Hampshire, president; George Wallace, of Newton, Mass., vice-president; William M. Upton, secretary, and Alvin F. Sortwell, treasurer. Address the company, care Room 12, Kendall Building.

Florence—Chartered: The C. C. Finkle Co., of Florence county, with C. C. Finkle, president; J. W. Finkle, secretary.

Rock Hill—Live Stock, etc., Company.—Chartered: The Kerr-Kendall Live Stock & Livery Co., with a capital stock of \$6000, by Walter B. Kerr, S. J. Kimball and James B. Heath.

Saluda—Oil Mill and Ginnery.—Alvin Ethridge will erect a 12-ton oil mill and a ginnery of three 75-saw gins.*

South Carolina—Oil Mill.—An oil mill will probably be established at some point in South Carolina. For information address W. H. Boyer & Co., 43 North Front street, Philadelphia, Pa.*

Spartanburg—Bobbin Factory.—C. W. Baldwin, of Atlanta, Ga., will remove his bobbin factory to Spartanburg, S. C.

Yorkville—Cotton Mill.—Rumors are current that another cotton mill will be built; T. B. McClain may possibly be interested.

TENNESSEE.

Anderson County—Coal Company.—The Middle Ridge Coal Co., of Anderson county, has been incorporated by John H. Wilson, William Bruce, J. M. Irby, J. T. Newman and others; letters addressed to John H. Wilson, Nashville, will probably be delivered.

Chattanooga—Shuttle Works.—The Dilworth Shuttle Works will erect a large two-story building and put in a larger plant. Address George M. Core, proprietor.

Chattanooga—Grain Elevator.—The grain elevator of the Mountain City Mill Co., recently reported as to be erected, will be constructed of steel, cylindrical in design, 75x50 feet, have a capacity for 100,000 bushels and cost \$20,000.

Chattanooga—Iron-manufacturing Plant.—

Louis Llewellyn and Jesse Evans will manufacture a patented self-heating smoothing iron. Address care of Chattanooga Implement Works.

Concord—Broom Factory.—The Concord Creamery Co. contemplates adding broom machinery.*

Dixie—Saw Mill.—A stock company has been organized and will put up a plant for cutting crossties and lumber; names of interested parties will be announced later.

Elizabethton—Electric-light Plant.—The city has signed contract for erection of a 400-incandescent-light plant. Address the mayor.

Gallatin—Water Works.—Investigations are being made relative to the establishment of a system of water works. Address the mayor.

Knoxville—Separator Company.—Chartered: The National Butter Separator Co., with a capital stock of \$10,000, by C. R. McCormick, Nelson J. Tabb, C. W. Steele, R. M. Armstrong and others.

Knoxville—Range Works.—F. E. Fuller has purchased a complete set of machinery and tools for the manufacture of steel ranges, and has, with J. L. Nelson, G. R. Seates, W. A. Hickey, R. L. Cullen and others, incorporated the Knoxville Range Co., with a capital stock of \$20,000, to operate the plant, which will have, with present machinery, capacity for twenty ranges per day. For information address F. E. Fuller.

Knoxville—Stove Foundry.—F. E. Fuller has secured a controlling interest in the Seates Warm Air Furnace Co. and will largely increase the output, putting in several thousands of dollars worth of the latest improved machinery. The company has secured a large foundry and machine-rooms, where it will do all the work of manufacturing furnaces. The Seates Warm Air Furnace Co. has obtained new charter, with a capital stock of \$40,000; incorporators, F. E. Fuller, J. L. Nelson, G. R. Seates, W. A. Hickey and R. L. Cullen. Address for information F. E. Fuller.

Lewisburg—Novelty Works.—A. B. Ewing has put in operation the Lewisburg Novelty Works for the manufacture of his patent gravity level, as well as all kinds of wood-work.

Memphis—Crematories.—Contract for the two crematories to be built for the city by the Dixon Crematory Co. has been signed by the city council. Address Mayor Williams for information.

Nashville—Timber Lands.—Harris & Cole Bros., of Cedar Falls, Ia., have purchased and will probably develop 11,000 acres of timber land in Wayne and Perry counties. The purchase price was \$25,000.

Ripley—Planing Mill.—A planing mill will be erected. For information address A. A. Young, clerk county court.

Ripley—Ice Factory.—A stock company has been incorporated to erect an ice factory; A. A. Young, clerk county court, can be addressed for information.

Trenton—Cotton Mill.—There is talk of a cotton mill being built. Possibly J. A. Landis can give information.

TEXAS.

Austin—Machine Works.—C. M. Simington, W. H. Thaxton, W. H. Taylor and D. M. Crosthwait have incorporated the Simington Manufacturing Co., with a capital stock of \$40,000, for the manufacture of the Simington seed-cotton distributor and feeder, machinery, etc. Address C. M. Simington for information.

Corsicana—Development Company.—The Central Texas Oil & Development Co. has been organized, with W. E. Sullivan, president; T. J. Gay, vice-president; R. W. Bogy, treasurer, and W. P. Garber, secretary and general manager, for development purposes; capital stock \$10,000. Charter will be ap-plied for.

Eagle Pass—Coal and Coke Company.—Chartered: The Eagle Pass Coal & Coke Co., with a capital stock of \$150,000, for the purpose of developing coal mines, manufacturing coke, etc.; incorporators, Louis L. Dole, J. B. Dibrell and Emil Mosheim.

Ennis—Hose Company.—George Baltzler, Will Norwood, H. J. Perkins and R. H. Roorbach have formed a hose company for fire protection. Address R. H. Roorbach, secretary.

Gonzales—Electric-light Plant.—The Citizens' Electric Light & Power Co., lately reported, has placed contract for 2000-light monocycle dynamo and steam outfit. Address J. D. Sayes, Jr., secretary.

Greenville—Hardwood Factory.—W. O. Stamps will erect a hardwood factory; two buildings will be erected, 64x75 feet and

40x100 feet, to contain machinery, planing mills and workshops.

Houston—Manufacturing Company.—J. J. Pastoriza, W. G. T. Carver and N. L. Mills have incorporated the Acme Disinfecting & Sanitary Manufacturing Co., to manufacture and sell disinfectants and sanitary preparations; capital stock \$3000.

Houston—Furniture Factory.—The Lottman Manufacturing Co. is preparing for the manufacture of furniture.

Sherman—Shoe Factory.—J. N. Harrell, of Bluffton, Ia., is investigating the advisability of establishing a shoe factory, with daily capacity of 500 pairs, in Sherman.

Silsbee—Lumber Mill.—The Industrial Lumber Co. has leased the mill of the Texas Pine Land Association and will operate same for a number of years.

Sweetwater—Telephone System.—Nebblett & Cox have closed contract for the construction of a telephone system.

Sweetwater—Water Works.—Contract has been closed for the removal of the Colorado water-works plant to Sweetwater. Address secretary Board of Trade for information.

Temple—Water Works.—The Temple Natatorium & Artesian Water Supply Co. has been granted franchise for the construction of the water works recently noted. The company is as yet undecided whether a standpipe or automatic-pressure pumping system will be used. The flow will be increased by use of compressed-air lift; no contracts have as yet been made for machinery.*

Terrell—Milling Company.—The Terrell Milling Co. has been incorporated, by E. J. Lockhead, T. M. Kell and J. B. Anthony, to conduct a general milling business; capital stock \$30,000.

Vinton—Lumber Mill.—The Vinton Mill Co. will rebuild its plant recently burned.

Weberford—Cotton Mill.—Efforts are being made for the erection of a \$75,000 cotton mill, \$50,000 of which capital has already been subscribed. Address R. H. Fout for further information.

VIRGINIA.

Alexandria—Sewerage.—A resolution has been introduced in the city council appropriating \$4000 for construction of a sewer. Address the mayor.

Alexandria—Acid Works.—The Alexandria Chemical & Fertilizer Co. is erecting a large building and when completed will equip same with machinery for the manufacture of acids.

Berryville—Water Works.—The city will hold an election to determine the issuance of bonds for the construction of a system of water works. It is the intention of the city if the bonds are voted favorably to purchase the property of the old Berryville Water Co. for \$5000, construct new reservoir and lay about two and one-half miles of additional piping at a cost of \$15,000, making the entire cost of the works about \$20,000. For further information address the mayor.

Bristol—Barrel Factory.—R. & H. Dadis will establish a plant for the manufacture of lime barrels.*

Chase City—Telephone System.—W. H. L. Nelms will construct a telephone system, lines to extend to Boydton.

Charlottesville—Slate-pencil Factory.—M. Kauffman has leased the plant of the Albemarle Slate Co. and has equipped same and proposes to have it in full operation in a few days, employing seventy-five operatives.

Charlottesville—Water Works.—The city has voted to authorize an issue of \$12,000 of bonds to be used in the construction of an auxiliary to the city's water works. Address the mayor.

Goshen—Iron Furnace.—The Victoria Iron Co. is preparing to put in blast its furnace.

Max Meadows—Iron-ore Mines.—James Short, of Clark's Summit, is superintending the development of iron-ore mines near Max Meadows, output of the mine being forty tons per day.

Norfolk—Ice and Plaster Factory.—The Norfolk Warehouse Co. will erect two large plants, one for the manufacture of ice and the other for the grinding of Nova Scotia rock into land plaster; contract for machinery has not as yet been let; Thorburn Reid, 120 Liberty street, New York city, is consulting engineer.

Pittsville—Iron-ore Mines.—E. R. Huller, operating under the name of the Pittsville Mining Co., has leased an ore-producing property near Pittsville and commenced operations. This new lease is to extend the operations now in course of progress. Employes number now about 100, to be increased when new shafts now under construction are completed.*

Portsmouth—Mercantile Company.—The Brown Dry Goods Co. has been incorporated, with Louis Morris, of Baltimore, Md., president, and Louis Shrier, secretary and treasurer, to conduct a general dry goods business; capital stock to be not more than \$5000.

Richmond—Mining Company.—The Richmond Aurora Mining Co. has been incorporated, with Fred W. Scott, Richmond, president; E. T. D. Myers, Jr., Richmond, secretary-treasurer, and Directors Fred W. Scott, E. T. D. Myers, Jr., A. H. Christian, Jr., and J. P. Coulter, general manager; purpose is to prospect for gold, silver and other metals and minerals. The capital stock is to be not less than \$2500 nor more than \$10,000.

Richmond—Knitting Mill.—E. M. Gross for eighteen years of the E. M. Gross Manufacturing Co., Troy, N. Y., will locate a knitting mill in Richmond; building has been secured and will be equipped at once with machinery for the manufacture of skirts, shirts and underwear from silk, cotton and wool; 10-horse-power dynamo will be installed to run 120 machines, and 200 persons will be employed; M. Strassburger, of Baltimore, Md., will also be interested in the mill. Address E. M. Gross, care of J. L. Levy, 100 East Marshall street.

Richmond—Compressed-air Plant.—Joseph H. Hoadley, of New York; Edwin S. Cramp, of Philadelphia; Joseph B. Fair, of Montreal, and John A. Insee, of St. Louis, Mo.; J. L. Montague, S. W. Travers and Thomas Atkinson, of Richmond, Va., have petitioned the board of aldermen for a franchise authorizing the laying of pipes under the streets for the purpose of transmitting compressed air to be used for power, refrigerating, cooling and ventilation. It is a system which converts the power of a waterfall into compressed air that may be transmitted through pipes for many miles. The work of construction and installation will be commenced as soon as the franchise is granted. Thomas Atkinson can be addressed for information.

WEST VIRGINIA.

Charleston—Gas and Oil Plant.—The American Oil Development Co. has applied for franchise to establish a natural gas and oil plant.

Charleston—Chartered: The National Salt Co. Address Simon Stern, 56 Beaver street, New York city.

Hendricks—Woodenware Factory.—Chas. B. Clark, of Hendricks; Joseph P. Brown, Chickney Brown and Wm. A. Hoffman, of Baltimore, Md., have incorporated the American Manufacturing & Enameling Co., with a capital stock of \$100,000, for the manufacture of specialties in woodenware. Address Charles B. Clark.

Macdonald—Coke Ovens, Coal Mines, etc.—The Longacre Colliery Co., reported last week as incorporated, will erect 100 coke ovens, with coal crusher, elevators, conveyors, screens, coal-mining machines, coke-crushing machine, etc. This plant is now employing sixty men, is building tipples,

and will expend \$50,000 in installing the plant, which, when completed, will employ 400 operatives. For information address S. Dixon, manager.

Piedmont—Coal Mines.—The Piedmont Mining Co., mentioned in our last issue, has been fully organized, with Wm. H. Gorman, president; Arthur P. Gorman, Jr., vice-president, and T. W. Stingley, secretary and treasurer. The coal property to be operated by this company is situated about one mile from Piedmont, the first mine of which has already been opened, and has a capacity of 300 tons of big vein coal per day, and employs 80 to 100 operatives.

Sistersville—Glass Factory.—R. Broadwater, Box 112, and others have formed a company and the stock has all been subscribed for the erection of the glass plant, mentioned during the week. The company cannot as yet give any details as to size or capacity.

Weston—Development Company.—Andrew Edmiston, J. H. Edwards, J. W. Ross, Jacob Koblegard and Louis McBride have incorporated the Weston Development Co.

Weston—Oil Company.—Chartered: The Straight Run Oil Co.; incorporators, Andrew Edmiston, J. H. Edwards, J. W. Ross, Jacob Koblegard and Louis McBride.

BURNED.

Adams, Ga.—The stills of A. C. McLennan & Co., estimated loss \$3000.

Belleview, Fla.—The saw mill of Mr. Brown, near Belleview.

Croxtton, Va.—R. T. Dillard's saw and grist mill.

Franklin, Tenn.—The cotton gin of W. L. Johnson in Ewingville; estimated loss \$5000.

Geneva, Ala.—The Geneva Courthouse; estimated loss \$8500.

Mobile, Ala.—The plant of the Edgar Foundry and Machine Works, near Mobile.

Oxford, N. C.—The cotton gin and whiskey still of Mr. Bullocks, near Oxford.

Rogersville, Tenn.—The flour mill of the Rogersville Milling Co.; estimated loss \$10,000.

Vidalia, Ga.—The lumber and shingle mills of W. L. Darby.

BUILDING NOTES.

Alexandria, Va.—Courthouse and Jail.—The county supervisors will on March 25 examine plans and specifications for new county courthouse and jail at Fort Myer Heights; estimated cost \$20,000.

Anniston, Ala.—Cottages.—The Anniston Net & Twine Co. is erecting ten cottages.

Atlanta, Ga.—Temple.—Bruce & Morgan will prepare plans for a four or six-story temple, to cost \$40,000, for the Atlanta Masonic Temple Co. For information address either Frank Wilby, James L. Mayson or J. P. Greenfield.

Augusta, Ga.—Auditorium.—Efforts will be made for the organization of a stock company for the erection of a \$15,000 auditorium. Address for information H. C. Middleton.

Baltimore, Md.—Building.—The Hibernian Association is considering the erection of a new building. Address Simon L. Kemp, president.

Baltimore, Md.—Church.—Morrow Bros. have received contract at \$5783 for the erection of the new Bohemian Presbyterian Church, which will be 70x70 feet. Address Rev. Vaclav Vanek, pastor.

Baltimore, Md.—Dwellings.—Permits have been granted to J. A. Rodbird to erect twelve two-story dwellings; Miss Anna McMahon to erect one two-story brick dwelling; L. Stroh to erect three two-story brick dwellings.

Baltimore, Md.—Bank Building.—The Commonwealth Bank, James R. Wheeler, president, will erect a new bank building; plans have not yet been considered. Address the president for information.

Baltimore, Md.—Hospital.—Wyatt & Nolting have prepared plans for an addition to the Presbyterian Eye, Ear and Throat Charity Hospital; to be heated throughout by hot-water apparatus; have electric lights and all modern appliances and conveniences.

Bowling Green, Va.—Church.—The Calvary Baptist congregation has completed arrangements for the erection of a new church. Address the pastor.

Canfield, S. C.—Building.—W. G. Gelsenheimer will erect a three-story brick building.

Charlotte, N. C.—Building.—C. C. Hook is preparing plans for a building, three stories, 50x90 feet, to be erected by Willis T. Wilkinson; plans will be ready in about two weeks and contract let at once.

Columbia, S. C.—Dispensary.—Plans have been prepared, and as soon as agreed on bids will be asked until April 10, for the erection of the new dispensary building. Address Haselden & Cooper, sub-committee of the State board of control.

Columbia, S. C.—Residences.—Wilson & Edwards, 1416 Main street, have prepared plans for residences for August Kohn and P. H. Nelson.

Columbia, S. C.—Warehouses.—Wilson & Edwards, 1416 Main street, have prepared plans for three cotton warehouses, capacity 18,000 bales, for J. C. & E. W. Robertson.

Cumberland, Md.—School Building.—A school building to cost about \$8000 will be erected. Address school commissioners.

Cumberland, Md.—Building.—Wright Butler is preparing plans for a three-story brick building for H. U. F. Flurshurz.

Cumberland, Md.—Cottage.—J. H. Holzshu is erecting a cottage.

Darlington, S. C.—Residences.—Wilson & Edwards, 1416 Main street, Columbia, S. C., have prepared plans for residences for W. D. Cogshall and R. E. James.

Douglas, Ga.—Hotel, etc.—Mr. Gaskins will with others erect a hotel and several cottages at Gaskins Spring.

Elizabethtown, Ky.—Hotel.—R. Buck Park will erect a three-story modernly-equipped hotel.

Elizabethtown, Ky.—Business Building.—

H. T. Jones has contract to erect a large department store for John Woelpert.

Flat Rock, N. C.—Cottages.—A number of cottages will be erected by the Hart Manufacturing Co., reported elsewhere in this issue.

Florence, Ala.—Parsonage.—The congregation of the Catholic church will erect a parsonage at once. Address the pastor.

Fort Logan, Ark.—Officers' Quarters.—Sealed proposals will be received until April 8 for construction at Fort Logan H. Roots, Arkansas, of one double set of officers' quarters. Bids will be considered separately for construction proper, plumbing and heating. Plans and specifications can be seen at office or at the offices of the quartermaster at Fort Logan H. Roots and depot quartermaster, St. Louis, Mo. J. G. C. Lee, assistant quartermaster-general U. S. Army, Chicago, Ill.

Giddings, Texas—Courthouse.—Plans prepared by J. R. Gordon, of San Antonio, Texas, have been accepted for the proposed \$33,300 courthouse. Address the mayor.

Greensboro, N. C.—Residence.—W. A. Sharp will erect a residence.

Greenville, S. C.—Theater.—A theater will probably be erected. For information address H. M. Shumate.

Greenville, S. C.—Residence.—Wilson & Edwards, 1416 Main street, Columbia, S. C., have prepared plans for residence for T. P. Cotbran.

Jacksonville, Fla.—Building.—W. A. MacDuff has contract for the erection of a three-story brick building for the E. M. L'Eagle estate.

Kansas City, Mo.—Auditorium.—Frederick E. Hill, New York Life Building, has received contract for the erection of the auditorium, which will be two stories, 198x314 feet, and cost about \$100,000.

Kings Mountain, N. C.—Residence.—J. M. Williams will erect a residence.

Knoxville, Tenn.—Dwelling.—Gen. J. T. Wilder is having plans prepared for a residence.

Knoxville, Tenn.—Residence.—L. C. Waters, of Atlanta, Ga., is preparing plans for a residence in West Knoxville for Attorney General G. W. Pickle; to be constructed of red pressed brick, with stone trimmings, and equipped with gas and electric lights, electric bells, speaking tubes, and heated with hot air. Bids will be asked as soon as plans are completed.

Laurel, Md.—School.—The city will issue \$8000 of bonds towards erecting the new high school. Address county commissioners.

Lexington, Ky.—Infirmary.—Eastern Kentucky Asylum for the Insane will erect an infirmary at a cost of about \$6000, and wants bids on same. Address Dr. Edward M. Wiley, superintendent.*

Louisville, Ky.—Dwellings.—Permits issued to Mrs. Anna Stroben for \$3500 residence; to James Reid for two-story brick residence, cost \$3100, and J. P. Cassilly, two-story brick residence, \$3500.

Louisville, Ky.—Flats Building.—Kemvetter McDonald is preparing plans for an addition to the Rossmore flats to cost \$15,000.

Louisville, Ky.—Residence.—Dodd & Cobb are preparing plans for \$10,000 residence for Mrs. J. M. Robinson.

Louisville, Ky.—Buildings.—Permits have been granted to Dr. H. H. Grant for two and one-half-story brick residence, cost \$9000; Henry Ohlmann, two-story brick residence, cost \$3500; C. C. Bickel, three two-and-one-half-story residences, cost \$5000 each; Mrs. N. H. McCulloch, three-story brick dwelling, cost \$12,000.

Louisville, Ky.—Club.—D. X. Murphy & Bro. have prepared plans for remodeling the Kenton Club at a cost of \$6000.

Mannington, W. Va.—Church.—The Methodist Episcopal congregation will erect a \$12,000 church. Address the pastor.

Martin, Tenn.—Hotel.—Miss Carrie Wharton has let contract for the erection of a brick hotel.

Mayfield, Ky.—Business Block.—Coleman Farthing has contracted with Chamblin & Murray, of Paducah, Ky., for erection of a business block, two stories, 94x86 feet, cost \$10,000.

Mobile, Ala.—Theater and Hotel.—J. Pollock has purchased the Mobile Theater for about \$35,000 and will greatly improve and modernize same; will also erect in connection a hotel; work to begin about May 1. Address care of Pollock & Bernheimer Building.

Moreauville, La.—Church.—Albert LeMoine, of Cottonport, has been awarded contract for the erection of the building for the Church of the Sacred Heart; estimated cost \$10,000.

Norfolk, Va.—Dwellings.—Permits have been granted to Charles B. Jones for two-story frame residence; to Henry E. Simpson for two-story frame residence; to W. A. Egts for frame residence.

Orange, Texas.—Courthouse.—Contract has been awarded to McKnight & Robinson at \$28,300 for erection of the new courthouse, to be built of brick and fireproof. Address county commissioners.

Orlando, Fla.—Engine-house.—The city will erect new brick engine-house. Address the mayor.

Richmond, Ky.—Bank Building.—The State Bank & Trust Co. will erect a new building.

Sedalia, Mo.—Schools.—An election will be held in April to determine the issuance of \$30,000 of bonds for improving school buildings. Address Sedalia board of education.

Shreveport, La.—Church.—Jones & Duffy have received contract for the erection of an 180x70-foot church building for the Holy Trinity congregation, which will cost \$25,000. Address Rev. S. B. Schari, pastor.

St. Louis, Mo.—Business College.—Chartered; The Southwestern Business College, with a capital stock of \$5000, by G. W. Fritch, James Miles and others.

St. Louis, Mo.—Buildings.—Permits have been issued to H. Rubelmann for \$3000 two-story flat; A. Hasek for \$3000 two-story bakery; Muehling & Heilweck for \$7000 two-story dwellings; E. Goddard Milling Co., \$4000 flour mill; G. G. Denver, four two-story dwellings, \$8000; J. Newport, \$3000 two-story dwelling; F. W. Delos, \$3425 three-story dwelling; A. K. Humphrey, two-story dwelling, cost \$10,000; Mrs. E. Henshaw, \$3000 two-story store and dwelling; J. H. Simon, \$4500 two-story dwelling; Sarah A. Cavanaugh, \$3000 two-story dwelling; C. J. Christophe, six two-story dwellings, cost \$22,800; Lindell Real Estate Co., five two-story dwellings, cost \$15,000; John G. Otten, building to cost \$5000; Mississippi Valley Hay Storage Co. for an ironed frame building, cost \$10,000.

St. Louis, Mo.—Temple.—The erection of a five-story brick building, to cost about \$200,000, is contemplated. For information address Eugene Williams.

St. Louis, Mo.—Icehouse.—Permit has been granted to the House & Loomis Ice & Transportation Co. for the erection of a \$10,000 icehouse.

Tampa, Fla.—Building.—A. L. Shaw has received contract to erect the Krause block after plans by McGiekin & Jay; building to cost \$17,000.

Vale Summit, Md.—School.—The citizens have petitioned the school board for the erection of a \$2000 school building. Address the mayor.

Washington, D. C.—Dwellings.—Eliza A. Brooks will erect two-story frame dwelling 30x40 feet; A. F. A. King will erect a three-story addition 20x36 feet; James H. Caton will erect two-story brick house, front of brownstone, 18x32 feet; B. B. Conick will erect two-story brick residence 16x36 feet; B. F. Mockabee will erect five houses, two story, press-brick fronts; W. J. Palmer has prepared plans for two residences, three stories, press-brick and brownstone fronts, to contain reception hall and ten rooms, including bath.

Washington, D. C.—Monastery.—Permit has been issued for the erection of the Franciscan Monastery to be built in Brookland. Address superior of the Franciscan Monastery.

Washington, D. C.—Temple.—Site has been purchased and a four-story Masonic Temple building will be erected, to be complete in all its appointments, having steam heat and all modern conveniences. Address secretary Masonic Temple Association.

Washington, D. C.—Club Building.—H. E. Bonitz has prepared plans for a two-story building, 32x61 feet, to have all modern conveniences, for the Hanover Seaside Club. Address C. F. Vonkampen, care of the club, for information.

Waycross, Ga.—Hotel.—Dr. B. J. Smith contemplates the erection of a three-story brick hotel.

Wimberley, S. C.—Residence.—Wilson & Edwards, 1416 Main street, Columbia, S. C., have prepared plans for residence for H. L. Elliott.

Wrightsville, N. C.—Cottage.—W. F. Junge and P. H. Beck, of Southern Pines, N. C., (not Maryland, as erroneously printed heretofore), will erect a cottage at Wrightsville Beach.

Shoe Factory.—An excellent opportunity for buying a shoe factory at Gainesville, Ga., is offered by J. R. Boone, receiver.

RAILROAD CONSTRUCTION.

Railways.

Abbeville, Ala.—It is reported that an electric railway company may be organized to build a railroad from Abbeville to Euclid, a distance of twenty miles.

Allardit, Tenn.—It is reported that J. M. Dobbins & Co., of Chattanooga, Tenn., have secured the contract to grade the Cumberland Mountain Railroad, proposed between Rugby road, on the Cincinnati Southern system, through Fentress county. C. H. Williams, Georgetown, Ky., is one of the principal promoters of the enterprise.

Amarillo, Texas.—The Pecos & Northern Texas Railway Co. has been formed, with \$100,000 capital, to build a line from Amarillo through Randall, Castro and adjoining counties. It will be a feeder of the Fort Worth & Denver City Railroad.

Concord, N. C.—A correspondent of the Manufacturers' Record states that about seventeen miles of the Moore County & Western Railroad have been built. Of this, thirteen miles are represented by the Moore County Railroad, which has been purchased by the company. It is proposed to complete the line between Aberdeen and Concord, and it is stated that the company has secured a loan of \$1,500,000 to finance the undertaking. Among those interested are J. H. White, of Boston, Mass.; J. S. Kellogg, of Providence, R. I., and John C. Wadsworth, of Concord.

Decatur, Ala.—It is reported that a company has been formed to build a line between Decatur and Danville, a distance of twenty miles.

Decatur, Ala.—It is reported that the Nashville, Chattanooga & St. Louis Railroad Co., which has purchased and is extending the Middle Tennessee & Alabama Railroad, proposes to build it to the Tennessee river as soon as possible. About four miles of the line beyond Madison Crossroads have been completed. J. W. Thomas, at Nashville, may be addressed.

Denmark, S. C.—It is reported that the Atlantic Coast Line proposes building from Denmark to Martin's Station to give a shorter route to Augusta, Ga. Surveys are being made. John R. Kenly, at Wilmington, N. C., is general manager.

Denton, Texas.—It is stated that the Denton, Decatur & Western Railroad Co. is surveying its proposed line between Denton and Bridgeport, Texas, a distance of thirty-five miles. R. E. Carswell, at Decatur, is president of the company.

Elba, Ala.—It is reported that the Plant Railway & Steamship Co. is considering an extension from Elba to Enterprise, Ala., on its Alabama Midland branch, a distance of twelve miles. B. Dunham, at Savannah, Ga., is general superintendent.

Fort Smith, Ark.—The board of directors of the St. Louis Merchants' Exchange has endorsed the plan of the St. Louis, Siloam & Southern Railroad Co. to build a line from Fort Smith to St. Louis by way of Pomona, Mo. H. D. Mackey is one of the principal promoters. His address is at Pomona.

Greenville, S. C.—The Central Carolina Railroad Co., which proposes building between Augusta, Ga., and Greenville, has a capital of \$500,000. Among the promoters are Alvin Etheredge, of Saluda, S. C.; M. P. Wells, Eugene W. Able and W. S. Allen. The distance is estimated to be 110 miles.

Junction City, Ark.—In a letter to the Manufacturers' Record C. C. Henderson, general manager of the Arkansas Southern Railroad, states that this company is arranging to extend its road south through Louisiana to the Gulf of Mexico, a distance of about 250 miles.

Knoxville, Tenn.—The Knoxville & Bristol Railroad Co. has been chartered to build a line about 100 miles long to Bristol, Tenn. (At Bristol is the terminus of the Norfolk & Western system, and the new line would give the N. & W. an entrance into Knoxville.) Among those interested are Henry M. Aiken, Wm. O. Aiken and Frank Goodson.

Little Rock, Ark.—The question of forming a railroad company to build a line from Little Rock to connection with the Choctaw, Oklahoma & Gulf Railroad is being agitated among the business men. The line would be about 150 miles long and form a link between the road mentioned and the Little Rock & Memphis.

Mocksville, N. C.—It is expected to complete the branch of the Southern Railway system between Mocksville and Mooresville by May 15. One contract, that of L. H. Vaughn & Co., has been completed.

Montgomery, Ala.—It is reported that the Mobile & Ohio Railroad Co. is negotiating

with the contractor for its Montgomery & Columbus branch to relieve him of the work and complete this line itself.

Nashville, Tenn.—Representatives of the Mississippi Valley Trust Co., of St. Louis, Mo., are examining the route of the proposed Tennessee Central Railroad, with a view of determining the resources of the country and the opportunities of such a railroad for traffic purposes. Several contractors are also making an examination of the line. Jere Baxter, at Nashville, is president of the company.

Petersburg, Va.—It is announced that W. P. Chapman has secured the principal contract for constructing the Richmond, Petersburg & Carolina Railroad, between Petersburg and Ridgeway, N. C. His temporary address is at Petersburg, Va.

Petersburg, Va.—It is announced that the Richmond, Petersburg & Carolina Railroad Co. has let contracts for the first twenty miles of its line between Petersburg and Ridgeway, N. C., and that work is to begin by June 1. A part of the roadbed was graded several years ago. De Witt Smith, 59 Broadway, New York, is president of the company.

Searight, Ala.—It is rumored that the Mobile & Searight Railroad, now controlled by the Central of Georgia Railroad, may be extended from Searight to Pensacola, Fla., a distance of about sixty-five miles. The extension would go through portions of Covington, Escambia and Coffee counties, in Alabama. John M. Egan, at Savannah, Ga., is vice-president of the Central.

Starke, Fla.—It is reported that the Atlantic, Suwanee & Gulf Railroad Co. has decided to extend its line from Starke to Jacksonville on the east and to a connection with the Tallahassee, Carrabelle & Georgia on the west. This would give it an entrance to Tallahassee and form a new line between that city and Jacksonville. Arthur Melgs, at Jacksonville, Fla., is general manager of the company.

Staunton, Va.—E. C. Vincent, of Staunton, president of the Staunton & Augusta Railroad Co., informs the Manufacturers' Record that the company may begin work within the next sixty days. He states that the company proposes building a line to connect Staunton with the Norfolk & Western, also the Baltimore & Ohio Railroad. S. D. Timberlake is vice-president of the company and B. M. Blakemore secretary and treasurer.

Washington, D. C.—A bill is pending in Congress to incorporate the Washington, Annapolis & Chesapeake Beach Railroad Co. Among those interested are James H. Bell, H. Walker and W. F. Snyder.

Waskom, Texas.—It is reported that the Grigsby Construction Co., of Dallas, Texas, has secured a contract for grading and other work on the extension of the Texas & Pacific system from Waskom into Louisiana, a distance of about thirteen miles.

Street Railways.

Atlanta, Ga.—It is reported that the Consolidated Street Railway Co. will extend its line to College Park, in the suburbs. A. M. Woodruff is superintendent of the company.

Parkersburg, Va.—It is stated that the company promoting the electric street railroad has arranged to issue bonds to the amount of \$150,000 to construct this line. James M. Jackson, of Parkersburg, is one of the promoters of the enterprise.

Pine Bluff, Ark.—A correspondent of the Manufacturers' Record states that the city has made a contract with Wilber Harrison, of Anderson, and Nat Covington, of Peru, Ind., to build the proposed electric railway. A bond has been given by the contractors to insure the carrying out of their agreement.

St. Louis, Mo.—The St. Louis, Clayton & Creve Coeur Lake Railway Co. proposes to build an electric railway in the suburbs of the city. This line will be a portion of the Lindell Railway system, if built. G. S. Baumhoff is manager of the Lindell Company.

Boilers, Engines, Ice Machinery, etc.—Catalogue No. 27, describing boilers, slide-valve engines and hoisting and hauling engines; catalogue No. 28, describing the Sioux Corliss engines, and catalogue No. 29, describing ice and refrigerating machines, have been issued by the Murray Iron Works Co., of Burlington, Ia., and copies of each or all can be obtained on application. This company's experience of many years in the production of the highest grade machinery of the class indicated above, and its extensive success with its machines, warrant it in claiming that it can give satisfaction to the most exacting user of steam and ice plants. Prospective builders of new plants are invited to correspond.

Electric-light Machinery.—Bridges & Hollings, Navasota, Texas, want about 100 feet 20-inch belt, double leather; one 750-light alternating-current dynamo, exciter and equipments; must be good as new.

Electric-light Plant.—C. S. Nunn & Co., Marion, Ky., will receive bids until April 1 for construction of lighting plant of ten arc and 600 16-candle-power incandescent lamps.

Electric-light Plant.—Eastern Kentucky Asylum for the Insane, Lexington, Ky., wants estimates on a \$6000 electric-light plant. Address Dr. Edward M. Willey, superintendent.

Electric-light Plant.—R. Beebe, Cadiz, Ky., wants 30-kilowatt four-pole multipolar dynamo, one 35-horse-power gasoline engine, 800 pounds No. 6 wire, 200 pounds No. 8 wire, 100 pounds Nos. 12 and 14 wire, lamps and other supplies.

Electric-light Plant.—See "Cotton Mill."

Machinery, Proposals and Supplies Wanted.

Manufacturers and others in need of machinery of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery needed we will make their wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. The Manufacturers' RECORD has received during the week the following particulars as to machinery that is wanted.

Aluminum.—Edwin A. Sawyer, East Lake, N. C., wants to communicate with manufacturers of aluminum.

Bicycle-repair Tools.—C. L. Kirkley, office of city council, Camden, S. C., wants to buy bicycle-repair tools.

Boiler.—The Beam Gold Mining, Lumber & Manufacturing Co., Garfield, N. C., wants a good second-hand 40-horse-power portable boiler. (See "Hoisting Machinery.")

Boiler and Engine.—McWhirter Ginning Co., Toneyville, S. C., wants a 50-horse-power boiler and 40-horse-power engine.

Boilers and Engines.—The Central Phosphate Co., J. Kramer, general manager, wants catalogues on boilers and engines. Address both at Mount Pleasant, Tenn., and Beaufort, S. C.

Brick Machinery.—Hicks & Allen, Louisville, N. C., want to buy a brick-making machine.

Brick Machinery.—The Moore County Brick Co. will probably want supplies and machinery for brick works. Address Wm. J. Junge, care of the company, at Southern Pines, N. C.

Broom Machinery.—Concord Creamery Co., Concord, Tenn., wants estimates from manufacturers of broom machinery and supplies.

Building Materials.—J. W. McCown, Bowling Green, Va., wants pews, pulpit furniture, heating apparatus (hot air or steam), stained-glass windows, metal roofing and bell for church building.

Conveying Machinery.—The Central Phosphate Co., J. Kramer, general manager, wants catalogues on steel-wire cables. Address both at Mount Pleasant, Tenn., and Beaufort, S. C.

Cotton Ginnery.—Alvin Etheridge, Saluda, S. C., wants prices on outfit for cotton ginnery, including press for three 75-saw gins.

Cotton Mill—Pee Dee Manufacturing Co., Rockingham, N. C., is in the market for carding, spinning and weaving machinery, dyehouse equipment, 300 looms, steam plant, etc.; W. C. Leak, president.

Cotton Mill.—Pee Dee Manufacturing Co., W. C. Leak, president, Rockingham, N. C., wants to contract for complete cotton mill of 4000 spindles, 200 plaid looms, steam-power plant, electric-light plant, automatic-sprinkler system, etc.

Cotton-mill Machinery.—Thos. Bailey & Co., Thomas street, Athens, Ga., want one three-and-one-half-inch ring twister, five-inch traverse, suitable for doubling nine ends of $\frac{1}{2}$ in. yarn into one; must be in first-class order; forty to sixty spindle.

Crushing Machinery.—The Central Phosphate Co., J. Kramer, general manager, wants catalogues on crushing machinery. Address both at Mount Pleasant, Tenn., and Beaufort, S. C.

Electric Fans.—The Georgia Manufacturing Co., Columbus, Ga., wants to correspond with manufacturers of electric fans.

Electric-light Machinery.—Bridges & Hollings, Navasota, Texas, want about 100 feet 20-inch belt, double leather; one 750-light alternating-current dynamo, exciter and equipments; must be good as new.

Electric-light Plant.—C. S. Nunn & Co., Marion, Ky., will receive bids until April 1 for construction of lighting plant of ten arc and 600 16-candle-power incandescent lamps.

Electric-light Plant.—Eastern Kentucky Asylum for the Insane, Lexington, Ky., wants estimates on a \$6000 electric-light plant. Address Dr. Edward M. Willey, superintendent.

Electric-light Plant.—R. Beebe, Cadiz, Ky., wants 30-kilowatt four-pole multipolar dynamo, one 35-horse-power gasoline engine, 800 pounds No. 6 wire, 200 pounds No. 8 wire, 100 pounds Nos. 12 and 14 wire, lamps and other supplies.

Engine and Boiler.—Southern Mattress & Spring Bed Manufacturing Co., P. O. Box 454, New Orleans, La., wants to buy a 50-horse-power engine and boiler.

Fire Equipment.—The Hook & Ladder Co., Opelousas, La., wants to purchase rubber buckets. Address Aaron Jacobs, secretary.

Fire Equipment.—See "Cotton Mill."

Foundry Supplies.—F. E. Fuller, care of States Warm Air Furnace Co., Knoxville, Tenn., will need foundry supplies, including a crane that will hold about 4500 pounds.

Gasoline Engine.—R. Beebe, Cadiz, Ky., wants a 35-horse-power gasoline engine. (See "Electric-light Plant.")

Gas Tubes.—A. W. Greely, chief signal officer, War Department, Washington, D. C., will receive sealed proposals until April 12 for furnishing drawn-steel gas tubes in lots of fifty, one cubic foot capacity, with valves, tools fittings, regulators, gauge and connector. Bidders must state dimensions and weight. Specifications furnished upon application. Proposals must be marked "Proposals for Gas Tubes."

Grist Mill.—McWhirter Ginning Co., Tonesville, S. C., wants grist-mill outfit.

Hardware.—The Central Phosphate Co., J. Kramer, general manager, wants catalogues on hardware. Address both at Mount Pleasant, Tenn., and Beaufort, S. C.

Heating Apparatus.—J. W. McCown, Bowling Green, Va., wants heating apparatus, hot air or steam.

Hoisting Machinery.—The Beam Gold Mining, Lumber & Manufacturing Co., Garfield, N. C., wants a good second-hand 20-horse-power double-cylinder link-motion reversible hoisting engine, without boiler.

Ice Machine.—Cartaret Ice, Transportation & Storage Co., Charles S. Wallace, secretary-treasurer, Morehead City, N. C., wishes to buy a 10 or 15-ton ice machine.

Iron.—Sawyer Singletree & Manufacturing Co., Edwardsville, Ill., is in the market for iron for making clips one-quarter to three-quarters inch round, two and one-half flat, half oval and pale cap hickory wood for making shapes.

Machine Tools.—C. L. Kirkley, office of city council, Camden, S. C., wants to buy bicycle-repair tools.

Machine Tools.—Sawyer Singletree & Manufacturing Co., Edwardsville, Ill., is in the market for lathe for turning shapes, Bradley or other good steam hammers; new or second-hand.

Machine Tools.—Augusta Novelty Manufacturing Co., care of F. C. dos Passos, 832 Broad street, Augusta, Ga., wants power-stamping machine, second-hand gear-cutting and milling machine, in good condition.

Mattress Machinery.—The Southern Mattress & Spring Bed Manufacturing Co., P. O. Box 454, New Orleans, La., wants to buy machinery for the manufacture of mattresses, spring beds, excelsior, moss, shoddy, woven-wire and spiral springs; also for renovating feathers.

Metal Boxes.—J. W. Graves, Cedelle, Ga., wants to correspond with manufacturers of metal boxes, such as are used for canned meats, fruits, etc.

Metal Work.—W. A. Jones, Lieutenant-colonel of engineers, U. S. A. lighthouse engineer, Baltimore, Md., will receive proposals until March 31 for the materials and labor necessary for the completion and delivery of the metal work of the Wade Point lighthouse in North Carolina. Plans, specifications, forms, etc., can be obtained on application.

Mining Equipment.—E. R. Huller, care of Pittsville Mining Co., Pittsville, Va., will be in the market for cage or elevator for shafts.

Mining Machinery.—The Central Phosphate Co., J. Kramer, general manager, wants catalogues on boilers, engines, crushing machinery, steel-wire cables, tram cars, rails and hardware. Address both at Mount Pleasant, Tenn., and Beaufort, S. C.

Mining Machinery.—J. Hardwick Jackson, Room 420, Dyer Building, Augusta, Ga., wants to correspond with manufacturers of mining machinery.

Naval Supplies.—Proposals will be received at the bureau of supplies and accounts, Navy Department, Washington, D. C., until March 29 to furnish at the navy-yard, Boston, Mass., a quantity of leather, belting, white pine, pine tar, marine glue and files. Blank proposals will be furnished upon application to the navy-yard office, Boston, Mass. Edwin Stewart, paymaster-general, U. S. Navy.

Oil Mill.—Alvin Etheridge, Saluda, S. C., is in the market for a 12-ton cottonseed-oil mill; prices to be on each machine separate.

with guarantee as to capacity and construction.

Oil-mill Machinery.—W. H. Boyer & Co., 43 North Front street, Philadelphia, Pa., acting for others, want to correspond with manufacturers of oil-mill machinery.

Plumbing.—Eastern Kentucky Asylum for the Insane, Lexington, Ky., wants estimates on about 3000 feet of new modern sanitary plumbing; estimated cost \$12,000. Address Dr. Edward M. Wiley, superintendent.

Power Plant.—See "Cotton Mill."

Proposals.—U. S. engineer office, 537 Congress street, Portland, Me., will receive sealed proposals for building a steam vessel until April 15. For information apply to R. L. Hoxie, major engineer.

Railway Equipment.—E. R. Huller, care of Pittsville Mining Co., Pittsville, Va., will be in the market for small mine cars.

Railway Equipment.—Thomas Crawford & Co., Valdosta, Ga., are in the market for fifteen miles first-class relay 35 or 40-pound steel rails, delivered Valdosta.

Railway Equipment.—The Central Phosphate Co., J. Kramer, general manager, wants catalogues on tram cars and rails. Address both at Mount Pleasant, Tenn., and Beaufort, S. C.

Railway Equipment.—J. E. Land, Martin, Miss., wants a trackless engine of twenty horse-power for logging purposes.

Roofing and Siding.—McWhirter Ginning Co., Tonesville, S. C., wants corrugated steel siding and roofing.

Roofing.—J. W. McCown, Bowling Green, Va., wants metal roofing.

Saw Mill.—John C. Joseph, Littleton, Va., wants to buy a second-hand portable saw mill.

Saw Mill.—McWhirter Ginning Co., Tonesville, S. C., wants saw-mill outfit.

Sewerage.—Eastern Kentucky Asylum for the Insane, Lexington, Ky., wants estimates on the construction of a \$6000 sewerage system for asylum. Address Dr. Edward M. Wiley, superintendent.

Slate.—W. T. Adams Machine Co., Corinth, Miss., is in the market for a carload of roofing slate; wants lowest prices, stating rate of freight to Corinth.

Steam Hammers.—Sawyer Singletree & Manufacturing Co., Edwardsville, Ill., is in the market for steam hammers; new or second-hand.

Steam Tenders and Pile Sinkers.—Mississippi river commission, 2732 Pine street, St. Louis, Mo., will receive sealed proposals in triplicate until April 14 for furnishing three small steam tenders and four pile sinkers. Information furnished on application. H. E. Waterman, captain engineers, secretary.

Telephone Equipment.—George P. Folk, Edenton, N. C., wants to correspond with manufacturers of telephone supplies.

Water Supply.—Proposals for supplying the city of Rock Hill, S. C., with water will be received for thirty days from March 12 by the water works committee; the water furnished to be taken from artesian or deep wells. The city agreed to rent forty or more hydrants for a term of twenty years, and will give an exclusive franchise for a period of twenty years to the company supplying the water. Specifications and full particulars will be furnished by the committee. Address chairman water works committee, Rock Hill, S. C.

Water-wheel.—G. W. McCook, Springdale, Ark., wants names and addresses of makers of steel castings of a turbine water-wheel of an intricate make.

Water Works.—Plans and specifications are being prepared relative to advertising for bids for the construction of \$25,000 system of water works. Address Robert Neill, C. R. Handford or William Ramsey, members board for improvement district, Batesville, Ark.

Water-works Equipment.—Temple Naturalia & Artesian Water Supply Co., Temple, Texas, will want mains, standpipe, pumps, etc.

Wire-working Machinery.—See "Mattress Machinery."

Woodworking Machinery.—Alvin Etheridge, Saluda, S. C., wants prices on lathes to manufacture insulator pins and brackets; state capacity of machines.

Woodworking Machinery.—Augusta Novelty Manufacturing Co., care of F. C. dos Passos, 832 Broad street, Augusta, Ga., wants lathes to do wood and metal work; saws for resawing, ripping and dovetailing straight, and pony planers.

Woodworking Machinery.—The Standard Boiler & Bridge Co., Bellaire, O., wants lathe, 24 to 48-inch swing, with cross feed; second-hand will do.

Woodworking Machinery.—Wanted—Automatic ball-wood machine; manufacturers of such will please communicate. Address "Ball Wood," care Manufacturers' Record, Baltimore, Md.

Woodworking Machinery.—R. & H. Dadi, Bristow, Va., are in the market for a steam plant for the manufacture of pine staves and headings for lime barrels.

TRADE NOTES.

Satisfactory Business.—Orders for ninety-five machines have been received since the first of the year by the Triumph Electric Co., of Cincinnati, O., manufacturer of electric-light and power machinery.

Increasing Wages.—Business with the J. A. Fay & Egan Co., Cincinnati, O., has increased to such an extent as to justify it in voluntarily increasing the wages of employees 10 per cent., taking effect on the 21st inst.

Exporting Saw Mills.—Several orders have been received this year by the Salem Iron Works, of Salem, N. C., for saw-mill equipments to be shipped abroad, and an order for Venezuela is now being completed. The Salem Iron Works' export trade extends into almost all the South American republics, Australia, Sham, East Indies, Mexico and West India Islands.

Death of Jules Viennot.—It is with regret that a large circle of friends and business associates has heard of the death of Mr. Jules Viennot, which occurred at his home in Philadelphia recently. Mr. Viennot was seventy-three years of age, twenty of which were spent in the city of Philadelphia, and where for nearly that period of time he conducted an advertising agency, which became well and favorably known throughout the entire country. This agency, under Mr. Viennot's advisement and active management, attained a position much to be envied for its standing in the business community. The estate of Jules Viennot will continue the conduct of the agency under the management of Mr. J. A. Thompson, for many years connected with the business.

Mill Architects and Engineers.—Mr. Chas. A. M. Praray, for many years connected with C. R. Makepeace & Co., Providence, R. I., as architect and constructing engineer, and for the last past six years a member of the firm, has formed a copartnership with Mr. Wm. Wittam, Jr., a mill-owner of wide experience in this and other countries. The new firm is known as Charles A. M. Praray & Co., and is prepared to take charge of the designing, erection and complete equipment of all classes of textile and other manufacturing plants, and will use wherever advisable the "Praray" improved construction of mills, a method of which Mr. Praray is the patented and inventor. Mr. Praray has issued a circular naming a number of important Southern mills which were built after his system. The firm's offices are at Providence, R. I., and Charlotte, N. C.

TRADE LITERATURE.

Machine Tools.—Supplement to catalogue "B" of the U. Baird Machinery Co., of Pittsburgh, Pa., has been issued. The list includes machine tools and supplies of all kinds.

Friction and Lubrication.—A leaflet now being issued by the Joseph Dixon Crucible Co., of Jersey City, N. J., treats of friction and lubrication in a manner of value to anyone interested in these matters.

Traps.—A card now being mailed by the Heintz steam trap manufacturers, the W. S. Haines Co., of Philadelphia, Pa., contains abbreviated references to the merits of the trap. Send for card and booklet.

New Belting.—A circular is being distributed which relates the strong points of the new patent gutta-balata belting now being introduced by the Boston Belting Co., of 256 Devonshire street, Boston, Mass.

Mining Machinery, etc.—Catalogue No. 41 (1898 date) has been issued by the Ingersoll-Sergeant Drill Co., of Havemeyer Building, New York city. The company's line comprises mining, tunnelling and quarrying machinery of all kinds and for all purposes.

Crucibles.—The crucibles and other metal-melting appliances represented in the catalogue of the McCullough-Dalzell Co., of Pittsburgh, Pa., now before us, indicate that the company's quarter-century experience

has enabled it to produce articles of the highest grade. Located in the great steel and brass manufacturing district of Pennsylvania, the facilities surrounding the McCullough-Dalzell Co. have combined to allow the grade of plumbago crucibles to be produced that are qualified to please the most exacting.

Expanded Metal.—The "Doings of Expanded Metal" in its latest issue presents illustrated descriptions of several buildings and other forms of construction into which expanded metal has entered recently. New York Expanded Metal Co., 256 Broadway, New York city, will furnish information on request.

Steam Specialties.—A pocket catalogue is sued by the A. A. Griffing Iron Co., of Jersey City, N. J., contains illustrations, descriptions and prices of the line of steam specialties manufactured by the company. The line includes Bundy separators, feed-water heaters, steam traps, exhaust heads, low-water alarms, gravity pumps, etc.

Ship Windlasses.—A leaflet issued by the American Ship Windlass Co., of Providence, R. I., Frank S. Manton, agent, describes the Shaw & Spiegle patent automatic steam-towing machine manufactured by the company. A list of vessels using this towing device is presented and recommending letters from several transportation lines are given.

Road Machinery.—The progress of the good-roads movement in recent years has developed the invention of machinery for use in the construction of improved modern highways. Among the leaders in the construction of road machines is the Climax Road Machine Co., of Marathon, N. Y., and its illustrated catalogue describes fully and comprehensively the "Climax" road machine.

Modern Refrigerators.—Catalogue No. 35 of the McCray Refrigerator & Cold Storage Co., of Kendallville, Ind., contains illustrations of the McCray patent system of refrigerators and cooling-rooms for all purposes. Construction of refrigerators and cooling-rooms for meat markets, groceries, hotels, restaurants, clubhouses and public institutions is made a specialty by the company.

"How to Spray," etc.—A special catalogue and price-list of pumps and spray nozzles for every service has been issued by the Goulds Manufacturing Co., of Seneca Falls, N. Y. The catalogue tells how to spray, when to spray and what pumps to use to insure the life and yield of fruit trees, grapevines, berry bushes, etc. The Goulds Manufacturing Co. has warerooms at 16 Murray street, New York city.

Pumps.—A special circular and price-list of some recent additions to an already complete line of pumps for every service has been issued by the Goulds Manufacturing Co., of Seneca Falls, N. Y. The new goods are manufactured especially for the export trade, and comprise Goulds brass cylinder pitcher-spout pump, cistern suction pump, two-cylinder section pump, odorless diaphragm force pump, "Battie" hand fire-engine, two-cylinder force pump, swan-neck fire engine and swan-neck village fire engine. They are all finely illustrated, and the data is presented in a very complete and convenient form. A table of parities of exchange, showing the value of American money in pounds sterling, is also given for the benefit of foreign correspondents. Copies of the circular will be furnished on application.

Fireproof Grain Elevators.—The storage of grain is now, as it has been in the past, a foremost thought of millers and elevator owners. The last past four years have seen the introduction of several new ideas and methods of construction for grain elevators, one of the most important of which is the steel fireproof construction introduced by the Steel Storage & Elevator Construction Co., of Buffalo, N. Y. offices in the Guaranty Building. This company has issued a pamphlet which describes at length its method of constructing fireproof elevators for grain and illustrates graphically some of the large plants which it has built of late years. The Steel Storage & Elevator Construction Co. is engineer, manufacturer and contractor for fireproof steel grain elevators and for handling all classes of grain by pneumatics or the ordinary conveying system. Officers of the company are Mr. E. D. Johnston, president; F. J. Weber, vice-president and general manager; W. E. Will, secretary. Send for catalogue No. 4.

FINANCIAL NEWS.

The Manufacturers' Record invites information about Southern financial matters, items of news about new institutions, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

THE CURRENCY PROBLEM.

Clean-Cut Suggestions by President A. B. Stickney.

"The contest for commercial supremacy is a contest of individual commercial sagacity, instead of legislative wisdom or physical force." That sentiment pervades an argument for reform in the banking system made by Mr. A. B. Stickney, president of the Chicago Great Western Railway Co., in which are set forth great truths which must be acknowledged before the unrest in this country is laid. At the outset he takes the ground that "in the discussions which are now going on in and out of Congress, it seems to be assumed that metallic money and the circulating notes constitute the currency of commerce, while, in fact, neither is the real thing. The real currency is much broader. It is an invisible, intangible quality resting upon confidence, and growing out of and inseparable from commercial transactions. It is credit. Metallic money and paper promises to pay are but visible and tangible tokens of portions of the invisible and intangible. To regard such tokens as the currency is to confound the evidence of a thing with the thing itself. By far the larger portion of the currency is not represented by either metallic money or notes."

Mr. Stickney traces the origin of the necessity for a bank, which he says "is not a safe storage house for money or the seat of a Shylock, but an institution for loaning credits." It is "the clearing-house of commerce, the half-way house in the double exchange where credits are issued, redeemed and settled by offset. The sole function of the modern bank," he contends, "is to take up the safe credits of merchants using the word in its broad sense, and to issue in exchange its own credits to be used as currency." His conclusion is that the reformation of the currency is purely an economic problem, foreign alike to the realms of politics and legislation, and that the only thing that Congress can do towards the reformation of the currency is to repeal certain provisions of existing laws, which forbid the use of improved currency machinery in the United States, and to meddle no further with the subject beyond the adoption of such police regulations as shall prevent frauds without interfering with the natural rights of honest trade.

Mr. Stickney inclines strongly towards the branch banking system of Scotland. He shows how that system had successfully weathered financial storms before which English banks had succumbed, how England had adopted it, how the principle of the single national reserve of gold evolved by natural processes, and how the Canadian adaptation of the Scotch system advanced the millions necessary to move the wheat crop of Minnesota and Dakota in 1883-94-95, when the Minnesota banks, the Boston and New York banks, with \$30,000,000 or \$40,000,000 of surplus, dared not advance a cent. He includes among the advantages of branch banks upon a free basis their tendency to a uniform rate of interest, and the development of currency wherever it is needed, of particular value to new communities. He reviews the cause of the stringency of the past

few years due to the limitations of the present system of banking, and adds: "The time has come when it is disgraceful for the United States to longer require foreign capital with which to conduct its business or develop its natural resources."

"The United States possesses capital enough, if it were properly mobilized, to conduct its own business affairs, develop its natural resources, and, in addition, to not only free itself from its bondage of interest tribute to England, but to enable it to compete with England in her most profitable business of collecting interest and commissions from all the other nations."

"The mobilization of the capital of this country must be accomplished through better banking machinery. And I have such faith in the commercial sagacity of the American people that it leads me to believe that if Congress will give them freedom of action they will accomplish the task."

"Therefore, let Congress unshackle the commercial genius of this country, and, unless its vigor has been emasculated by too long emulating the habits of the helpless bird by setting in its little nest with upturned head and distended mouth, waiting for the government to drop the worm, which it should catch for itself, it will reform the currency."

Mercantile Trust Co. Officers.

The Mercantile Trust & Deposit Co. of Baltimore has elected the following officers: President, Gen. John Gill; vice-presidents, W. W. Spence, Charles R. Spence, A. H. S. Post; treasurer, John McHenry; secretary, L. C. Fischer; assistant secretary, Charles E. McLane. Mr. Post was promoted from cashier to third vice-president; Mr. McHenry from assistant secretary and treasurer to treasurer.

New Corporations.

Messrs. King, Snyder & Co. have opened a banking-house at Arcadia, Fla.

It is reported that P. H. Fitzgerald and others are preparing to organize a national bank at Fitzgerald, Ga.

It is reported that Thomas Sully and others, of New Orleans, are interested in forming a bank at Covington, La.

The Trowbridge Insurance Co. has been organized by Frank Trowbridge and others at St. Louis, Mo., with \$8000 capital.

J. M. McCoy, S. E. Cox and others have secured a charter for a co-operative insurance company, with headquarters at Camilla, Ga.

J. E. Buxton, S. E. Neal and others have organized the Winston Agency, to do an insurance business at Winston, North Carolina.

The Citizens' Bank at Jeanerette, La., has been organized, with \$25,000 capital. C. A. McGowen is president, and C. P. Binnings, vice-president.

J. E. Houston and W. W. Wright, of Chester, Pa., are interested in the Home Accident Association, recently formed at Elkhorn, W. Va., with \$50,000 capital.

The bank organized at Pickens, S. C., has received a commission to do business, with \$25,000 capital. Among those interested are John P. Stewart, J. P. Carey and others.

Thomas H. Wright, E. Payson Willard and others have incorporated the Co-operation Building and Loan Association of Wilmington, N. C., with \$100,000 capital.

A bill is pending in the Maryland legislature to incorporate the Hagerstown Trust Co., with \$10,000 capital. Among those interested are Buchanan Schley and W. B. Sweeney.

A. E. Booth, J. B. Sexton and George

R. Willis are interested in the Home Trust Co. of Baltimore, and a bill is pending in the legislature to incorporate it. The capital is \$25,000.

The Palmetto Building and Loan Association of Spartanburg, S. C., has received a commission to do business. Among those interested are W. H. Clark and W. S. Jones. The capital is \$50,000.

Thomas M. O'Connor, J. B. Mitchell and Venable B. Proctor, of O'Connorport, Texas, have formed the O'Connorport Co. to do a building and loan business. Uriah Lott, of San Antonio, Texas, is also interested.

A bill has been introduced into the Maryland legislature to incorporate the Union Bonding, Trust & Deposit Co. of Baltimore. Among those interested are Thomas E. Bond, George W. Yellott and Samuel P. Ryland, Jr. The capital is \$250,000.

A bill has been introduced into the Maryland legislature incorporating the Continental Trust Co. The incorporators are Alonzo L. Thomson, James H. Cottman, Thomas Keating Stuart, Jacob H. Hartman and Wm. G. H. Stump. The capital stock is to be \$250,000, divided into 2500 shares of \$100 each.

New Securities.

The town of Thomaston, Ga., will vote June 16 on an issue of \$10,000 in bonds. James R. Atwater is mayor.

It is reported that the town of Bristol, Tenn., has been offered par for the proposed issue of \$15,000 in 5 per cent. bonds. Address the town clerk.

It is reported that the Merchants' Exchange of St. Louis may issue \$150,000 in bonds to refund indebtedness on its building. Christopher Sharp is president of the company.

The board of supervisors of Alleghany county, Virginia, will receive bids until May 14 for \$20,000 worth of 5 per cent. refunding bonds. The board may be addressed at Clifton Forge, Va.

The Cumberland Telephone & Telegraph Co., of Nashville, Tenn., it is stated, will issue \$1,000,000 in 5 per cent. gold bonds. The Washington Trust Co. at New York is trustee for the issue.

The Sinking Fund Commission of Roanoke, Va., has purchased the issue of \$26,000 in school bonds voted by that city. The bonds bear interest at 6 per cent. and were sold for \$28,257.50 and interest.

A correspondent of the Manufacturers' Record writes that the town of Lexington, Va., will refund an issue of \$15,000 in bonds in October next. T. E. MacCorkle, mayor, will give further particulars.

C. C. Goodnow, mayor of Fitzgerald, Ga., writes the Manufacturers' Record that the proposed bond issue will amount to \$33,000, and will bear interest at the rate of 6 per cent. Bids will be received until April 4.

Mayor J. E. Kennedy, of Martin, Tenn., informs the Manufacturers' Record that F. R. Fulton & Co., of Portage, Wis., have contracted for the issue of \$25,000 in 6 per cent. bonds voted by the city on March 9.

It is announced that the Mercantile Trust & Deposit Co. of Baltimore has been appointed trustee for an issue of \$150,000 in bonds for the Parkersburg Gas, Electric & Street Railway Co., of Parkersburg, W. Va.

Dividends and Interest.

The Peninsula Bank of Williamsburg, Va., has declared dividend of 4 per cent.

The Norfolk & Southern Railroad Co. has declared a quarterly dividend of 1 per cent., payable April 11.

The Arlington Oil & Fertilizer Co., of Arlington, Ga., has declared an annual

dividend of 10 per cent. and increased its capital to \$30,000.

The People's Savings & Loan Co., of Savannah, Ga., has declared a dividend of \$3.50 per share semi-annual.

The Savings Bank of Baltimore and the Eutaw Savings Bank of the same city announce the payments of annual interest on deposits of 3½ and 3 per cent., respectively.

Financial Notes.

The bank at Lono, Ark., has been organized under the title of the Central Bank of Arkansas.

The Third National Bank of Knoxville, Tenn., has decided to reduce its capital from \$300,000 to \$200,000.

It is reported that the Deposit Bank of Midway, Ky., has been reorganized with P. P. Parrish, president, and Albert Gayle, cashier.

Make the Fireside Attractive.

In these days of business competition, originality and taste in displaying articles, as well as in advertising them, are powerful aids in the development of a business. A company which realizes the value of attractive displays is the National Mantel & Tile Co., of Baltimore. Although it has been in the field less than two years, its business has increased to remarkable proportions, and it is now carrying out contracts in many of the principal cities of the country, as well as in Baltimore and vicinity. This company has recently fitted out apartments in the Manufacturers' Record Building, where its offices are located, to represent the interior of dwellings. The general design carried out is that of Mr. S. H. Calkins, general manager of the company, and the effect is not only beautiful, but strikingly realistic.

In the Colonial room, for example, the visitor sees the combined fireplace and mantel, with the same surroundings as when it forms a portion of the house, with no rough edges or other crudities to mar the artistic finish. Curtains, lambrequins and delicately-tinted walls all contribute to the pleasing effect produced, and the spectator might imagine himself in a drawing-room or dining-room of the Colonial type, so popular at present for country life, and even for town houses.

The variety of fireplaces and mantels even of this particular style is very large. In the display mentioned, the fireplace facings, for example, include white glazed tiles, also decorations on white with gold designs, which are extremely artistic. Other material used for the facings are onyx, also sienna, Pavanozza, Lisbon and Numidian marbles. The fireplace linings consist of grates in black iron, at present very popular, also plated and cast brass, while those who prefer fireplace furniture can select andirons, fenders and fire sets in brass, both antique and polished, also oxidized, and even gold-plated. The company controls many of the designs in mantel work, and has one of the best artists in the country making exclusive designs.

There is no more attractive place in the home than around the fireside. It is the magnet which draws the members of the family and visitors at all times. Consequently, it forms a very essential portion of the architecture of the modern abode, and such displays as that of the National Mantel & Tile Co. are aids in carrying out plans for this portion of one's dwelling. The Colonial is but a portion of the mantels which this company offers for inspection. It shows a very large variety in dark and hard woods, with tiles to match, many of which are extremely original in their design and proportions.

Maryland Casualty Co.

Keyser Building,
Calvert and German Streets,
BALTIMORE.

The Only Company of its kind in Maryland or the South.

Cash Capital, \$250,000
Cash Surplus, 100,000

Inspects and Insures Boilers and Elevators.
Insures Plate Glass.
Issues all forms of Accident and Liability Policies.

Managed and Superintended by Trained and Experienced Men.

YOUR BUSINESS SOLICITED.

OFFICERS:

JOHN T. STONE, President.
AUBREY PEARRE, Vice President.
ROBERT N. ELDER, Jr., Secetary.
JOSEPH WALTERS, Treasurer and Local Supt.
JOSEPH G. CLOUD, Supt. of Agencies.
MARSBURY & BOWDOIN, General Counsel.

DIRECTORS:

Wilmer Brinton, John M. Hood, John C. Jenkins, Lloyd L. Jackson, J. W. Middendorf, Jr., Seymour Mandelbaum, Aubrey Peare, George A. Pope, Simon Rosenberg, Ernst Schmeisser, John T. Stone, Charles J. Taylor, J. Skeet Williams, George R. Webb.

AGENTS EVERYWHERE.

TABLE OF CONTENTS.

EDITORIAL:	Page.
Could Not Happen South.....	147
Manufactures and Commerce.....	147
Lessons from New England.....	147
The South's Population.....	147
For Tennessee's Welfare.....	147
Paternal Politics.....	148
Dairying in the South.....	148
History Repeats Itself.....	148
Industrial News from Birmingham.....	148
For a Sugar Mill.....	148
North Carolina Industries.....	148
Movement of the South's Population 1880-1890.....	149
COMMERCE:	
International Commercial Congress.....	151
Business at Port Arthur.....	151
White Star Line at New Orleans.....	151
Widening Our Markets.....	151
Old Bay Line.....	151
More Terminals for Exporting.....	151
Jottings at the Ports.....	151
RAILROAD NEWS:	
Railroad Activity in Virginia.....	152
Important North Carolina Road.....	152
To Cotton-Mill Towns.....	152
Tennessee Extensions.....	152
Two Tennessee Projects.....	152
The Richmond "Tramp" Locomotive.....	152
Pittsburg, Virginia & Charleston.....	152
Southern Iron for Ordnance.....	152
Railroad Notes.....	152
Iron Markets.....	152
TEXTILES:	
Clemson's Textile School (Illus.).....	153
"The Inevitable Transfer of Cotton Cloth Manufacture".....	153
Sound Advice to Planters.....	153
Underwear Mill for Richmond, Va.....	153
Doubling a Knitting Mill.....	153
Georgia's Textile School.....	153
The Cotton Movement.....	153
British Textile Machinery.....	153
The New Mill at Rockingham, N. C.....	153
Textile Notes.....	154
COTTONSEED OIL:	
The Market for Cottonseed Products.....	154
Cottonseed-Oil Notes.....	154
PHOSPHATES:	
Phosphate Markets.....	154
Phosphate and Fertilizer Notes.....	154
LUMBER:	
Lumber Market Reviews:	
Baltimore.....	155
Norfolk.....	155
Charleston.....	155
Savannah.....	155
Lumber Notes.....	155
MECHANICAL:	
Charleston's Bicycle Factory.....	156
Paint for Factory Interiors.....	156
Trade Notes.....	156, 161
CONSTRUCTION DEPARTMENT:	
New Enterprises.....	157
Building Notes.....	159
Railroad Construction.....	160
Machinery Wanted.....	160

J. WM. MIDDENDORF.

Members Baltimore Stock Exchange.

WM. B. OLIVER.

MIDDENDORF, OLIVER & CO. BANKERS AND BROKERS,

No. 213 E. German Street, [KEYSER BUILDING.] Baltimore, Md.
Stocks and Bonds Bought and Sold on Commission. Special attention given to Municipal and other Investment Loans. Dealers in Foreign Exchange. Drafts on Europe and Letters of Credit furnished.

Trade Literature..... 161

FINANCIAL NEWS:

The Currency Problem..... 162
Mercantile Trust Co. Officers..... 162
New Corporations..... 162
New Securities..... 162
Dividends and Interest..... 162
Financial Notes..... 162
Make the Fireside Attractive..... 162

TO CONTRACTORS.

If you have any municipal bonds or warrants, taken in payment for building waterworks, court or school houses, jails, etc., write us. Conditions being favorable, we can use them.

F. M. STAFFORD & CO.

Dealers in Southern Municipal Securities,

Chattanooga, Tenn.

JOHN L. WILLIAMS & SONS,

BANKERS,

Dealers in RICHMOND, VA.

Southern Investment Securities,

MUNICIPAL BONDS A SPECIALTY.

Correspondence Invited.

Mercantile Trust & Deposit Co.

OF BALTIMORE.

Paid-up Capital, \$1,000,000.
Surplus, \$1,000,000.

DEPOSITS RECEIVED
On which interest is allowed, governed by current rates obtainable.

TRUSTEES AND ADMINISTRATORS.
This company is a Legal Depository for funds in the hands of Trustees or Administrators, and allows interest on same pending distribution.

Authorized to act as Executor, Administrator, Guardian, Receiver or Trustee.

ACTS as Trustee of Mortgages of Corporations and accepts Transfer Agency and Registry of Stocks.

Safe Deposit Boxes for Rent.
Vaults supplied for Storage of Silver Chests, etc.

JOHN GILL, of R., President.

MARYLAND TRUST CO.

Corner South and German Sts.

BALTIMORE.

CAPITAL, - \$1,000,000.

A LEGAL DEPOSITORY FOR COURT AND TRUST FUNDS.

Acts as Financial Agent for States, Cities, Towns, Railroads and other Corporations. Transacts a general trust business. Lends money on approved security. Allows interest on special deposits. Acts as Trustee under Mortgages, Assignments and Deeds of Trust; as Agent for the Transfer or Registration of Stocks and Bonds, and for the payment of coupons, interest and dividends.

J. WILLCOX BROWN, PRESIDENT.
LLOYD L. JACKSON, FIRST VICE-PRESIDENT
HENRY J. BOWDOIN, SECOND VICE-PRESIDENT
J. BERNARD SCOTT, Secretary and Treasurer.

DIRECTORS:
J. Willcox Brown, Leopold Strouse.
Wm. A. Marburg, Henry Walters.
Basil B. Gordon, H. A. Parr.
Lloyd L. Jackson, B. N. Baker.
Geo. A. von Lingen, Andrew D. Jones.
H. J. Bowdoin, James Bond.
Joshua Levering, Alexander Brown.
Frank Brown, John A. Tompkins.
W. B. Brooks, Jr., Clayton C. Hall.
W. H. Baldwin, J. D. Baker.
Fred'k W. Wood, Joseph E. Willard.
F. M. Thieriot, John B. Garrett,



MANUFACTURERS OF

CORDAGE



The QUALITY of Our Rope is Our FIRST Consideration, the Cost is Secondary.

Send for Information About Transmission Rope.

Ours is the Best Made.

Alphabetical Index of Advertisers.

For "Classified Index" see pages 3, 5 and 7.

A	A. B. C. 20	Chattanooga Machinery Co. 26	General Fire Extinguisher Co. 9	McGowan, John H., Co. 32	Robins, A. K., & Co. 9
Adams, Robert Franklin. 20	Chattanooga Steel Roofing Co. 24	Gilbert, C. M., & Co. 6	McKenna, David. †	Robinson, J. M., & Co. 24	
Aetna Standard Iron & Steel Co. 24	Chesapeake Belting Co. *	Glaskin, George F., & Co. 6	McLanahan & Stone. 35	Robinson, Wm. C., & Son. 26	
Alabama Bridge & Boiler Co. 9	Chester Steel Castings Co. 13	Globe Machine Works. 19	McClure, J. H., & Son. 20	Rossendale-Reddaway Belting & Hose Co. 11	
Alabama Foundry & Machine Wks. 21	Chicago Belting Co. 11	Golden's Foundry & Machine Co. 27	Mead, Y. A., Cycle Co. 31	Royal Bag Mfg. Co. 18	
Albany Steam Trap Co. 17	Christiania Machine Co. 33	Gowdy, J. A., & Son. 26	Mecklenburg Iron Works. 14	Rubber Tire Wheel Co. 21	
Alber & Byrne. 6	Chrome Steel Works. 13	Graphite Lubricating Co. 13	Means & Fulton Iron Wks. 17	Ruzer, J. W., Mfg. Co. 15	
Albro, E. D., Co. 32	Cincinnati Corrugating Co. 25	Grasty, Roht. Ware. 21	Mercantile Trust & Deposit Co. 163	Russell & Co. 35	
Alexander Bros. 10	Cin., Hamilton & Dayton R. R. 1	Große, L., Art Glass Works. 24	Merchants & Miners' Transp. Co. 31		
Alford, A. G., Sporting Goods Co. 34	Cincinnati Safe & Lock Co. 22	Guilfoux & Blanc. 6	Meyer, Dr. Otto. 6	Sabel Bros. 8	
Alpha Paint & Mineral Co. 21	Clark, W. J., Co. 10	Haines, Jones & Cadbury Co. 38	M. F. 21	Samson Steel Belt Hook Co. 18	
Alsing, J. R., Co., Inc. 34	Clayton Air Compressor Works. 38	Haines, William S., Co. 4	Middendorf, Oliver & Co. 163	Sanderson, John. *	
American Balance Slide Valve Co. 18	Cleveland, Lorain & Wheeling Ry. 19	Hairston, Frank C. 21	Middletown Machine Co. 15	Saunders', D., Sons. 13	
American Cotton Oil Co. 30	Cleveland Wire Spring Co. 26	Hales & Ballinger. 6	Milburn, Frank P. 6	Schieler, Chas. A. & Co. 11	
American Diamond Rock Drill Co. 35	Climax Mfg. Co. 13	Hall Steam Pump Co. 32	Miles, Franklin S. 9	Schneider & Trenkamp Co. 8	
American Engine Co. 21	Coburn Trolley Track Mfg. Co. 8	Hammacher, Schlemmer & Co. 13	Miller Bros. & Co. 6	Schneider Mfg. Co. 24	
American Impulse Wheel Co. of N.Y. 33	Cohoe Iron Fdy. & Mch. Co. 29	Hansell Spring Co. 13	Morgan & Williams. 28	Scott & Williams. 28	
American Mfg. Co. 163	Columbia Water Power Co. 20	Harrington & King Perforat'g Co. 4	Scranton Corundum & Emery		
American Ship Windlass Co. 16	Columbus (Ga.) Board of Trade. 20	Harrisburg Mfg. & Boiler Co. 16	Wheel Works.		
American Supply Co. 29	Columbus Machine Co. 9, 15	Hartford Steam Boiler Inspection & Insurance Co. 36	Secretary Chamber of Commerce. 13		
American Woodworking Mch. Co. 26	Commercial Electric Co. 36	Hartley's Boiler Works. 15	Seidel, K. B. 4		
Ames Iron Works. 37	Commercial Wood & Cement Co. 6	Hartzell Novelty Works. 19	Seidel, R. D. 38		
Andersen, J., Jun. & Co. *	Consolidated Steel & Wire Co. 8	Hayden, J. M., & Co. 10	Shawhan-Thresher Electric Co. 37		
Andrews, A. H., & Co. †	Contractors' Plant Mfg. Co., Ltd. 8	Hazard Mfg. Co. 4	Simpson, H. P. 38		
Andrews, Perry, & Bro. 32	Cordesman Machine Co. 26	Help Wanted. 31	Simpson, J. S. & G. F. 35		
Apollo Iron & Steel Co. 18	Cordesman, Meyer & Co. 27	Hench & Dromgold. 26	Sinclair, S. H., Co. 38		
Armitage Mfg. Co. 25	Cormack Co. 21	Hendrick, C. E. 19	Situations Wanted. 31		
Atkins, E. C., & Co. 27	Corrington Metal Roofing Co. 25	Hendrick Mfg. Co., Limited. 9	Skinner Chuck Co. 9		
Atlanta Envelope Co. 2	Cotton Journal Co. 19	Hickman, Williams & Co. 22	Slatington-Bangor Slate Syndicate. 38		
Atlanta Terra Cotta Co. 33	Covert Mfg. Co. 34	Hiertz, Theo., & Son. 13	Smethurst & Allen. 37		
Austin Separator Co. 9	Cox, Justice, Jr. 19	Hightower Works. *	Smith-Courtney Co. 17		
Austin White Lime Co. 6	Crompton & Knowles Loom Wks. 29	Holder, T. J. 19	Smith, E. M. 20		
B	Crook Hanger Co. 1	Holmes, E. & B., Machinery Co. 26	Smith, H. B., Machine Co. 26		
Babcock & Wilcox Co. 15	Crosby Steam Gage & Valve Co. 16	Holmes Fibre Graphite Mfg. Co. 9	Smith, S. Morgan, Co. 33		
Baeder, Adamson & Co. 4	Crouse-Hinds Electric Co. 36	Holt, E. J. 19	Smith & Kilby Co. 22		
Bailey-Lebby Co. 31	Curtis & Marble Machine Co. 29	Holt, S. L., & Co. 21	Snow Steam Pump Works.		
Bailey, John T., & Co. 18	Cutter Mfg. Co. 8	Homer, F. E., & Co. 37	Southeastern Lime & Cement Co. 6		
Bair, W. B. 20	Cypress Lumber Co. 33	Hoopes & Townsend. 19	Southern Expanded Metal Co. 25		
Baldwin Locomotive Works. 13	D	Howard, B. C. 6	Southern Fdry. & Mch. Works. 21		
Ball Engine Co. 9	Dallett & Co. 22	Howes, S. Co. 28	Southern Iron & Equipment Co. 22		
Baltimore, Chesapeake & Richmond Steamboat Co. 31	Dana, W. K. 31	Huther Bros. †	Southern Railway Co. 31		
Baltimore Engraving Co. 1	Davis & Egan Mch. Tool Co. 13	Hutton Engineering Co. 6	Southern R. R. Estate Exchange. 21		
Baltimore & Ohio R. R. 1	Davis Coal & Coke Co. 10	I	Spear's Alden, Sons & Co. 24		
Baltimore Steam Packet Co. 31	Davis, Franklin F. 26	India Alkali Works. 28	Springfield Gas Engine Co. 15		
Baltimore Storage & Light. Co. 31	De Loach Mill Mfg. Co. 27	Ingersoll-Sergeant Drill Co. 18	Sprout, Waldron & Co. 34		
Barber Asphalt Paving Co. 19	Dempwolf, C. H., & Co. †	International Corres. Schools. 6	Stafford, F. M., & Co. 163		
Barnes, W. F. & John, Co. 9	Detroit Lubricator Co. 17	International & Gr. Northern Ry. 31	Standard Coal Co. 10		
Barnett, G. H., Co. 38	Dissston, Henry, & Sons. †	Interstate Law Association. 21	Standard Oil Co. 25		
Basshor, Thos. C., & Co. 21	Dissston, Henry, & Sons. †	J	Standard Paint Co. 25		
Bates', James, Sons. 9	Dixon, Jos., Crucible Co. 38	Jackson Mfg. Co. 10	Standard Saw Mill Machinery Co. 26		
Bayer, Henry, & Son. 21	Dixson, J. E. 21	Janney & Steinmetz. 19	Standard Scale & Supply Co., Ltd. 19		
Beach, H. L. 26	Donald. 20	Janney & Steinmetz. 19	Stanley Electric Mfg. Co. 36		
Beckley, A. J., & Co. 35	Dopp, H. Wm., & Son. 18	Jeffrey Mfg. Co. 30	Starr, B. F., & Co. 34		
Benjamin Iron & Steel Co. 22	Dowire Works Co. 24	Jenkins Bros. 35	Stebbins, Wallace. 14		
Berryman, James. *	Droper Co. 28	Jewell Belting Co. 11	Steel Rail Supply Co. 22		
Bertsch & Co. *	Droper Machine Tool Co. 12	Jones, Wm. 21	Steele, J. C., & Sons. 38		
Besly, C. H., & Co. 38	Dufur & Co. 24	Johns, H. W., Mfg. Co. 25	Sterling Emery Wheel Mfg. Co. 35		
Bird, Wm. M., & Co. 6	Dunbar, R., & Son. 34	K	Stevens', H., Sons Co. 35		
Birmingham Boiler Works. 17	Dunning, W. D. 19	Keeler, E., Co. 9	Stewart, James & Co. 6		
Bliss Co., E. W. 24	E	Kelly, O. S., Co., The. 35	Stiles, E. S., Press Co., The. 24		
Block-Pollak Iron Co. 22	Fairmount Machine Co. 28	Kelly & Jones Co. *	Stilwell-Bierce & Smith-Vaile Co. 30		
Boomer & Boschart Press Co. 19	Farquhar, A. B., Co., Limited. 26	Kendrick Valve & Washer Co. 33	Struthers, Wells & Co. 14		
Boone, J. B. 20	Fay, J. A., & Co. 27	Keystone Crusher & Roller Co. 35	Stuebner, G. L., Iron Works. 19		
Boston Belting Co. 10	Fay Manilla Roofing Co. 25	Keystone Drop Forge Co. 8	Sturtevant, B. F., Co. 8, 29		
Bradford Belting Co. 11	Featherstone's, John, Sons. 16	Kiechler Mfg. Co. *	Sturtevant Mill Co. 34		
Bradford's Detective Agency. 10	Engineering News Publishing Co. 6	Kilbourne & Jacobs Mfg. Co. 38	Sullivan Machinery Co. 35		
Bradford Mill Co. 12	Ennis, C. W. *	Kilburn, Lincoln & Co. 28	T		
Bradley Pulverizer Co. 35	Epping-Carpenter Co. 33	Klipstein, A., & Co. 26	Tanite Co. 35		
Bradstreet's Mercantile Agency. 31	Erikson, Edward E. 6	Lambert Hoisting Engine Co. 15	Taylor, A. W., Land & Lumber Co. 21		
Branson Machine Co. 25	Eting, Edward J. 19	Lane Manufacturing Co. 26	Taylor, James Knox. 19		
Brickenstein, L. B. 9	Eureka Fire Hose Co. 13	Lathbury, Spackman & Bache. 6	Thayer, J. A., & Co. 21		
Brothton, Fendig & Co. 21	Everson, B. M. 21	Lawrence, W. W., & Co. 2	Thompson, J., & Sons, Mfg. Co. 15		
Brooks, T. H., & Co. 24	Exchange Banking & Trust Co. 19	Leffel, James, & Co. 33	Thompson & Bushnell. 16		
Broomell, Schmidt & Co., Ltd. 16	F	Lehigh Valley Brass Works. 16	Toledo Machine & Tool Co. 24		
Brown-Bierce Co. 31	Fairmount Machine Co. 28	Lewis, H. F., & Co., Ltd. 28	Toomey, Frank. 21		
Brown Hoisting & Con. Mch. Co. 8	Fay Gas Engine Co. 15	Lidgerwood Manufacturing Co. 8	Tower & Wallace. 6		
Brown, Lucius P. 6	Fay Gas Engine Co. 15	Link-Belt Engineering Co. 39	Trenton Iron Co. 4		
Buckeye Engine Co. 14	Fog. 22	Lobdell Car Wheel Co. 9	Trevor Mfg. Co. 26		
Buckeye Iron and Brass Works. 30	Foos Gas Engine Co. 15	Lombard Iron Wks. & Supply Co. 12	Triumph Electric Co. 36		
Buffalo Forge Co. 35	Foos Mfg. Co. 34	Lowell Machine Shop. 28	Tudor Boiler Mfg. Co. 15		
Bureau of Freigh & Transporta- tion, Charleston, S. C. 18	Forbes, W. D., & Co. 15	Ludlow Textile School. 1			
Burn Manufacturing Co. 9	Frick Co. 14	Ludlow Valve Mfg. Co. 33			
Bush, T. J. 20	Froehling, Dr. Henry. 6	Lunkenheimer Co. 35			
Bushnell, G. H., Press Co. 39	Frontier Iron Works. 15	Lyon, A. J., & Co. *			
Byers, Jno. F., Machine Co. 8	Fuel Economizer Co. *	Macfarren, S. J. 6			
C	Galt, John, & Sons. 25	Main Belting Co. 10			
Cady, C. N. 9	Gandy Belting Co. 11	Makepeace, C. R., & Co. 6			
Caldwell, H. W., & Son Co. 4	Garrett-Buchanan Co. 25	Maison Steam Shovel Co. 2			
Calera Lime Co. 6	Garrett, C. S., & Son. 25	Martin, Hy., Brick Mch. Mfg. Co. 30			
Cameron, A. S., Steam Pump Wks. 32	Frick Co. 14	Maryland Casualty Co. 163			
Cameron & Barkley Co. 34	Froehling, Dr. Henry. 6	Maryland Cement Co. 6			
Card Electric Co. 36	Gandy Belting Co. 11	Maryland Mfg. & Construction Co. 16			
Cardwell Machine Co. 30	Frontier Iron Works. 15	Maryland Trust Co. 163			
Carlins, Thomas, Sons. 31	Fuel Economizer Co. *	Mason Machine Works. 28			
Carnell, George. 30	Gatz, John, & Sons. 25	Mason Regulator Co. 32			
Caroline Iron Works. 34	Gandy Belting Co. 11	Maxwell, W. G. 20			
Carver Cottou Gin Co. 26	Garrett, C. S., & Son. 25	McCabe, J. J. 12			
Case Mfg. Co. 8	Garrett, C. S., & Son. 25	McClave, Brooks & Co. 9			
Castner, Curran & Bullitt. 10, 23	Funkhouser, Saml. 21	McCoy, Joseph F., Co. 8			
C. & B. Line. 1	Galt, John, & Sons. 25	McCuilley, R. 35			
Chairman Water Wks. Committee. 19	Gandy Belting Co. 11	McDonald, John, & Sons. 6			
Chambersburg Engineering Co. 26	Garrett, C. S., & Son. 25	McEwan, John & Sons. 28			
Chance, G. W. 6	Garrett, C. S., & Son. 25	McKenna, David. †			
Chapman, Wm. A., & Co. 6	Gatz, John, & Sons. 25	McLanahan & Stone. 35			
Chapman Valve Mfg. Co. 33	Gedge Bros. Iron & Foundry Co. 25	McClure, J. H., & Son. 20			
Charlotte Machine Co. 29	Globe Machine Works. 13	Mead, Y. A., Cycle Co. 31			
Chattanooga Fdy. & Pipe Works. 38	Graphite Lubricating Co. 13	McKenna, David. †			
	Grasty, Roht. Ware. 21	McLanahan & Stone. 35			
	Gross, L., Art Glass Works. 24	McClure, J. H., & Son. 20			
	Guildoux & Blanc. 6	Mead, Y. A., Cycle Co. 31			
	Haines, Jones & Cadbury Co. 38	McKenna, David. †			
	Haines, William S., Co. 4	McLanahan & Stone. 35			
	Hairston, Frank C. 21	McClure, J. H., & Son. 20			
	Hales & Ballinger. 6	Mead, Y. A., Cycle Co. 31			
	Hall Steam Pump Co. 32	McKenna, David. †			
	Hammacher, Schlemmer & Co. 13	McLanahan & Stone. 35			
	Hansell Spring Co. 13	McClure, J. H., & Son. 20			
	Hanson & Van Winkle Co. 36	Mead, Y. A., Cycle Co. 31			
	Hanson, Van Winkle Co. 36	McKenna, David. †			
	Harrington & King Perforat'g Co. 4	McLanahan & Stone. 35			
	Harrisburg Mfg. & Boiler Co. 16	McClure, J. H., & Son. 20			
	Hartford Steam Boiler Inspection & Insurance Co. 36	Mead, Y. A., Cycle Co. 31			
	Hartley's Boiler Works. 15	McKenna, David. †			
	Hause & Ballinger. 6	McLanahan & Stone. 35			
	Hawthorne Works. *	McClure,			

PROPOSALS.

THE County Commissioners of Pulaski County, Georgia, desire to purchase for courthouse windows, inside blinds; best material and latest styles wanted. For further information address T. J. HOLDER, Clerk, Hawkinsville, Ga.

NOTICE TO BIDDERS.—The City of Harrison, Tenn., invites Bids on Material, Apparatus and Construction of an Incandescent Light Plant, specifications for which may be obtained of D. W. Thomas, City Clerk. All bids to be made in duplicate one addressed to C. E. Hendrick, Treasurer, the other to D. W. Thomas, City Clerk. Bids will be received until twelve o'clock noon, Thursday April 14, 1898. C. E. HENDRICK, Treasurer.

TREASURY DEPARTMENT, Office Supervising Architect, Washington, D. C., March 1, 1898.—Sealed proposals will be received at this office until 2 o'clock P. M. on the 26th day of March, 1898, and opened immediately thereafter, for all the labor and materials required for the erection and completion of a disinfected house for the U. S. Marine Hospital building at Baltimore, Md., in accordance with the drawing and specification, copies of which may be had at this office or the Office of Custodian, Baltimore, Md. JAMES KNOX TAYLOR, Supervising Architect.

BIDS WANTED.—PROPOSALS for supplying the City of Rock Hill with water will be received for thirty days from this date by the Water-Works Committee, of the City of Rock Hill, S. C. The water furnished to be taken from Artesian or Deep Wells. The City of Rock Hill agrees to rent forty or more hydrants for a term of twenty years, and will give an exclusive franchise for a period of twenty years to the company supplying the water. Specifications and full particulars will be furnished by the Committee who reserves the right to reject all bids. Address CHAIRMAN WATER-WORKS COMMITTEE, Rock Hill, S. C. March 10, 1898.

PROPOSALS FOR FURNISHING STAMPED ENVELOPES AND NEWSPAPER WRAPPERS.

POST OFFICE DEPARTMENT, WASHINGTON, D. C., Feb. 28, 1898. SEALED PROPOSALS are invited, and will be received at this Department until 12 M. on Wednesday, the 30th of March, 1898, for furnishing stamped envelopes and newspaper wrappers in such quantities as may be called for by the Department during a period of four years, beginning on the first day of October, 1898. Proposals must be made on the blank forms provided by the Department, securely enveloped and sealed, indorsed "Proposals for furnishing stamped envelopes and newspaper wrappers," and addressed to the Third Assistant Postmaster General, Washington, D. C. Bids delivered in person must be handed in at or before the hour above specified for the receipt thereof; otherwise they will not be considered.

Blank forms of proposal, with full specifications and samples of the envelopes and wrappers, will be furnished upon application to the Third Assistant Postmaster General.

JAMES A. GARY,
Postmaster General.

PROPOSAL FOR FURNISHING ADHESIVE POSTAGE STAMPS.

POST OFFICE DEPARTMENT, WASHINGTON, D. C., Feb. 28, 1898. SEALED PROPOSALS are invited from parties carrying on the business of steel-plate engraving and plate printing, or who have had experience in conducting that business, and will be received at this Department until 12 o'clock A. M., on Wednesday, the 30th of March, 1898, for furnishing adhesive postage stamps of the following-named classes, in such quantities as may be called for by the Department during a period of four years, beginning on the first day of July, 1898, viz.:

Ordinary postage stamps for the use of the public.

Newspaper and periodical stamps.

Postage-due stamps.

Special delivery stamps.

Proposals must be made on the blank forms provided by the Department, securely enveloped and sealed, indorsed "Proposals for furnishing adhesive postage stamps," and addressed to the Third Assistant Postmaster General, Washington, D. C. Bids delivered in person must be handed in at or before the hour above specified for the receipt thereof, otherwise they will not be considered.

Blank forms of proposal, with full specifications, will be furnished upon application to the Third Assistant Postmaster General.

JAMES A. GARY,
Postmaster General.

Bids Wanted on

Railroad Construction.

The undersigned owners of franchise to build a railroad extending from Monroe, La. to Parish of Natchitoches, La., 89 miles, desire bids from contractors to build the above railroad. Work to commence by May 1st, 1898. Railroad line traverses undulating long leaf pine country until the fertile valley of the Red River is reached. Franchise is valuable. Address

Monroe Rwy. & Construction Co.
MONROE, LA.

L. D. M. Lain, Prest.

SHEET IRON WORKERS! HAVE YOU SEEN OUR WAGON MAKERS!

Drill Press?

Write for Circulars.

THE GLOBE MACHINE WORKS,
137 & 139 W. 2nd St., Cincinnati, O.

CHARLESTON, S. C.

Is showing great Commercial Development.

For Sale—Residences, Building Lots, Farms, Manufacturing and Hotel Sites.

An ideal city for a HOME. Full of historic interest. Cost of living is cheap and climate delightful. Educational facilities are unsurpassed.

Large produce of farms near Charleston is shipped to Northern and Eastern markets at good profits.

Exchange Banking & Trust Company,
CHARLESTON, S. C.

IMPROVED WATER POWER

for COTTON MILL in Central North Carolina FOR SALE. Address E. J. HOLT, Smithfield, N. C.

P. O. Box 127.

BRADFORD'S DETECTIVE AGENCY,

M. BRADFORD, Supt.

82 Bank Street, NORFOLK, VA.
Legitimate work solicited in any part of the country. Write for references.

The Cleveland, Lorain & Wheeling RAILWAY.

SHORT and ONLY DIRECT LINE BETWEEN CLEVELAND, MEDINA, STERLING, WARWICK, MASSILLON, JUSTUS, CANAL DOVER, NEW PHILADELPHIA, UHRICHSVILLE, ST. CLAIRSVILLE, BRIDGEPORT, BELLAIRE and WHEELING. DIRECT CONNECTIONS MADE AT CLEVELAND FOR NEW YORK, BOSTON, ALBANY and all points East, and at ELYRIA and LORAIN for points West.

W. R. WOODFORD, M. G. CARREL,
Gen. Mgr. Gen. Pass. Agt.

It costs only
15 Cents a
year to own one.

THE BEST ON EARTH,
Patented January 5, 1897;
others applied for.

THE HARTZELL

Self Draining Hose Reel.

It will last twenty years and
it sells at

\$2.50
AND

\$3.00
EACH.

It is rigidly, scientifically and mechanically constructed. It drains out all the water. It keeps the hose in good order. The hose is not kinked, twisted, crushed or drawn to a tension as it is easily unrolled. It sells at sight. For catalogue and lists address

The Hartzell Novelty Works, Alliance, O., U. S. A.

EDWARD J. ETTING,
IRON & STEEL,

Land Title Bldg., Broad & Chestnut Sts., Philadelphia, Pa.
Storage Yard—Old Navy Yard.

REPRESENTING
The Holland Company
Girder and Tee Rails.

REPRESENTING
Matthew Addy & Co.
PIG IRON.

AGENT
UNION MINING CO.
MFRS. OF
"Mt. Savage" Fire Brick

AGENT
Dayton Coal & Iron Co.
LTD.
PIG IRON.

COAL AND ORE BUCKETS

SELF-DUMPING
AND SELF-RIGHTING
Side, End and Bottom Dumping
Cars. Steel Rails, Switches and Curves, Iron Wheelbarrows, Hoisting Blocks, Etc.

G. L. Stuebner Iron Works
Long Island City, N. Y.

CATALOGUE?

The BROUGHTON
FOR
DRY MIXER

Hard Plaster, Cement, Paint, &c.

W. D. DUNNING,

96 W. Water St., SYRACUSE, N. Y.

ASPHALT PAVEMENTS

Enhance the Value of Property One-Third.

DURABLE HEALTHFUL NOISELESS

20,000,000 square yards laid in eighteen years.

For plans and estimates apply to

THE BARBER ASPHALT PAVING COMPANY,

General Office, 11 Broadway, New York.

NOT CONTROLLED BY ANY COMBINATION OR TRUST.
"THE STANDARD" SCALES

For all purposes, including
R. R. Track Scales of Largest Capacity. Strictly High Grade.

Send for Catalogue and list of users.

THE STANDARD SCALE & SUPPLY CO., Limited,
Manufacturers, PITTSBURGH, PA.

PRICE & COMPANY, BALTIMORE, MD. CLARKSBURG, W. VA.
Manufacturers of Oak, Etc., For Foreign and Domestic Markets.
Agents for Farde & C. Curtin Lumber Co.'s
BAND SAWED POPLAR, ASH, WALNUT, CHERRY, ETC.

Cable "HEALD." P. O. BOX 202.

PRICE & HEALD.

Wholesale Dealers and Manufacturers

HARDWOODS & POPLAR

Sawed or in the Log, for Domestic or Foreign Trade.

Yards, Locust Point. Office, Manufacturers' Record Building.

Branches: Grafton, W. Va., Bristol, Tenn. BALTIMORE, MD.

ANNOUNCEMENT—COTTON GINNING AND ALLIED INDUSTRIES.

The April (1898) Issue of the

COTTON GINNERS' JOURNAL,

Published Monthly at Waco, Texas, Will Reach

30,000 COPIES.

TO THE TRADE:

The Publishers of THE COTTON GINNERS' JOURNAL beg to announce the completion, with the March number, of the first year of the publication. The Publishers also utilize this opportunity to express appreciation of the kindly reception THE JOURNAL has met at the hands of its reading and advertising clientele and the public generally. To mark the opening of the second year the April number will have a circulation of 30,000 copies, reaching all Cotton Ginnings, Cotton Oil Mills, Compresses, Spinners, and many leading Cotton Growers in the Cotton States.

Manufacturers or dealers in Machinery or Appliances used in the industries above mentioned will find THE JOURNAL, and especially the April issue, a valuable medium for advertising.

Rates are reasonable and faithful attention to all orders is guaranteed.

April number goes to press April 25. Advertising matter can be handled up to April 23.

ADDRESS

THE COTTON JOURNAL CO., Waco, Texas.

Purchasers of

Cold-Punched Nuts

Do Not Be Deceived by a

"Hot-Pressed Nut"

Chamfered and Trimmed Cold.

HOOPES & TOWNSEND,
PHILADELPHIA, PA.

Janney & Steinmetz,

DREXEL BLDG., PHILADELPHIA.

IRON AND STEEL PLATES,
Manufactured Shapes, Forgings, Etc.

JUSTICE COX, JR.

552-554 Bullitt Bldg., Phila.,

Agent for

Pulaski Iron Company.

Brier Hill Iron & Coal Company.

Lebanon Valley Furnace Company.

ECO MAGNETO WATCHMAN'S
ELECTRIC CLOCK.

Indorsed by all Insurance Companies. Write for Catalogue.

ECO MAGNETO CLOCK CO.

621 Atlantic Ave., BOSTON, MASS.

THE BOOMER & BOSCHERT
KNUCKLE JOINT.

PRESSURE

FOR BALING

Cloth, Paper, Yarn, &c.

Or for any other purpose requiring great pressure.

BOOMER & BOSCHERT PRESS CO.

99 W. WATER ST., SYRACUSE, N. Y.

XUM

**SPECIAL Advertisements
of GENERAL Interest.
OPPORTUNITIES FOR INVESTORS.**

- - - INVEST IN - - -

**Columbus, Georgia.
20,000 Electric H. P.**

Developed and Being Developed.

125 Feet Fall at Columbus, Ga., in Chattahoochee River.

Largest and Cheapest H. P. in the South.

Established Manufacturing Center.

Large Operative Population. Temperate Climate.

Columbus Was Incorporated in 1829 and Has Never Had An Epidemic.

Free Mill Sites, either in or just without the corporate limits. No Strikes.

Lowest Tax Rate of any Georgia County.

No Oppressive State Legislation.

Seven Railways. Five Steamboat Lines.

Low Freight Rates.

Electric Belt Line. Electric Street Cars.

Minimum Cost of all Building Material.

Public Day, Night and Kindergarten Schools.

Handsome Churches and Public Library.

A Refined and Progressive Citizenship.

**The Coming Great Manufacturing Metropolis
of Georgia and the South. - - - - -**

ADDRESS

L. H. CHAPPELL, Mayor, or
RHODES BROWNE, Secretary
Columbus Board of Trade,
COLUMBUS, GA.

In the Circuit Court of the United States, for the Eastern Division of the Southern District of Georgia.

MERCANTILE TRUST & DEPOSIT CO.
OF BALTIMORE, TRUSTEE,
Complainant,
Versus

THE BRUNSWICK LIGHT & WATER COMPANY.

Under a final decree rendered in the above case on the 12th day of March, 1868, by the Honorable United States Circuit Court for the Eastern Division of the Southern District of Georgia notice is hereby given that any and all persons entitled to share in the distribution of the proceeds of the properties, assets and franchises of the Brunswick Light & Water Co., which were sold under a decree of said Court passed on the 12th day of May, 1867, to present their demands to the undersigned as Master Commissioner, Macon, Georgia, by the 15th day of April, 1868.

For further information, reference is made to the decrees in said case of the dates above stated.

ALEXANDER PROUDFIT,
Master Commissioner.

A Good Chance for a Cotton Factory.

50 acres with ample buildings, one 100-horse-power steam engine and boiler. The above property is all new and is known as the Shreveport Fair Grounds. Address

R. M. SMITH, Shreveport, La.

Alabama Coal Lands.

8000 acres coal lands in Alabama for sale at very low price. address

T. G. BUSH, Anniston, Ala.

THE COLUMBIA WATER POWER CO., COLUMBIA, S. C.

.....offers for sale.....

UNLIMITED ELECTRIC POWER

In large or small units for manufacturing purposes. Columbia is in the centre of the cotton producing country. Low freight rates to all points. An ideal manufacturing location.

GEORGE WALLACE, General Manager, Boston Office, 53 State St., Room 608.
WM. C. HAWKINS, Managing Engineer, Columbia, S. C.

Horse Power for Sale or Lease.

Manufacturers who are contemplating removing their plant or establishing a branch factory are invited to investigate the superior advantages possessed by the

**Roanoke Navigation
& Water Power Co.**

The third largest power in the United States, situated at WELDON, N. C., at the junction of the Seaboard Air Line and Atlantic Coast Line.

2000 HORSE POWER NOW READY for immediate use and capable of development to almost any extent, situated at the head of navigation of Roanoke River and junction of Atlantic Coast Line and Seaboard Air Line, INSURING FIRST-CLASS SHIPPING FACILITIES TO ALL POINTS AND LOW FREIGHT RATES. Absolutely free from interference by high water. Good manufacturing sites for various industries are available. 2,000,000 brick on hand and a yard sufficiently large to supply any demand. Weldon is in the centre of the RICHEST COTTON LAND IN THE SOUTH, 200,000 BALES COTTON BEING PRODUCED ANNUALLY.

This section is RICH in TIMBER and WOOD for manufacturing purposes, as well as for making acetate of lime or potash. Boats using 3/4 feet water can go up the river from our power site for 30 miles, developing a valuable timber country that has not been penetrated.

FOR THE ESTABLISHMENT OF AN ICE FACTORY no better location can be found, having a territory of a radius of 50 miles, containing a population of 400,000. LABOR is INTELLIGENT, ABUNDANT and CHEAP. ALL DESIRABLE and NEEDED ADVANTAGES.

Our power can be bought or leased at reasonable rates. Will take pleasure in answering all requests for detailed information. Address

Roanoke Navigation & Water Power Co.

JAS. W. WILSON, Pres't. & Gen. Mgr.

WELDON, N. C.

**COTTON MACHINERY
FOR SALE.**

Apply New York Office, 18 Walker Street.

Kitson Opener and Breaker Lapper, 36", 3 B aters. Kitson Finishing Lapper, 36", 2 Beaters.

23 Howard & Bullough Roller Cards, 36", with Colliers, Clothed.

34 Deliveries Howard & Bullough Drawing, 10" Colliers

2 Howard & Bullough Slubbers, 10x5, 80 spindles each.

1 Saco Water-Power Slubber, 10x5, 60 spindles.

4 Howard & Bullough Intermediate Roving Frames, 9x4 1/2, 100 spindles each.

3 Saco Water-Power Roving Frames, 7x3 1/2, 144 spindles each.

1 Howard & Bullough Roving Frame, 7x3 1/2, 160 spindles.

5 Howard & Bullough Roving Frames, 7x3 1/2, 144 spindles each.

4 Parr Warp Mules, 1 1/2 gauge, 700 spindles each.

4 Parr Warp Mules, 1 1/2 gauge, 600 spindles each.

1 Arnold Spooler 4" gauge, 80 spindles.

1 Payne Spooler, 4 1/2 gauge, 80 spindles.

1 English Spooler, 4 1/2 gauge, 360 spindles.

4 Howard & Bullough Warpers, 500 spools to creel each.

2 Howard & Bullough Slashers, 82" copper cylinders.

Watts Campbell Co. Horizontal Corliss Steam Engine, condensing; diam. of cylinder, 23"; stroke, 48"; diam. of belt wheel, 20 ft.; face, 24 inches.

Set Roll Covering Tools.

14" x 7" x 12" Knowles Duplex Pump.

Set Philips Dry Cans, 1 cylinder 6ft. x 84", 5 cylinders 3ft x 84", with water rolls.

4 Butterworth Drying Cylinders, 42" x 23".

1 Fales & Jenks Dry Twister, 200 spindles.

1 5/8" Luther Wood Stretcher; 2 Luther Brass Stretcher, 74" x 12".

1 20" Risdon Water Wheel, 2 1/2" Davis Regulator.

1 Cloth Doubler 1 Stott Silk Warper.

Oil Tanks, Vapor Pots, Steam Traps, &c.

1 48" x 160" Barney Fans.

4 Butterworth Drying Cylinders, 62" x 23".

4 Granger Drying Cylinders, 108" x 30".

ROBERT FRANKLIN ADAMS.

FOR SALE.

**Complete Knitting Mill
Machinery Outfit.**

Capacity about 400 dozen a week of misses and ladies ribbed hose and men's half hose. All necessary dyeing machinery, building, etc. Located in a growing town with good railroad facilities, cheap labor, fuel, etc. Will be sold privately, or if not sold by May 2d, will be sold at auction that day. For further information address

NEWTON HOSIERY MILL,
NEWTON, N. C.

**Knitting Mills
for the South.**

MR. W. G. MAXWELL, of the Wool Exchange Building, New York, one of the founders of Roanoke Rapids, N. C., and organizer of the first knitting mill company there, is prepared to introduce this industry at any favorable point in the South with the utmost speed and perfection.

The knitting mill at Roanoke Rapids has been a wonderful success, and is now running night and day.

The South is beginning to feel the competition of her own cotton mills, but the knitting industry has there a comparatively free field, and this is the time to enter it with certainty of large profits.

Mr. Maxwell will be pleased to correspond with individuals, corporations or municipal bodies upon the subject.

**Southern Cotton Mill
WANTED.**

A practical cotton manufacturer would buy one-half interest in a cotton cloth or yarn mill of five to ten thousand spindles. Or would arrange with a company having a good mill with latest make of machinery who are in need of financial assistance to loan the amount needed, interest and security being satisfactory, and take management of mill during time of loan.

Address A. B. C., care of this paper, giving full description of property; also price.

State make of machinery and how long in use.

WANTED.

**A First-Class Canning, Pickling
and Preserving Factory.**

Unlimited supply of raw material. Ten thousand acres in fruits and gardens. Center of Gulf Coast Fruit Belt. Located midway between Houston and Galveston, Texas.

A fine manufacturing point. Best shipping facilities. Correspondence solicited. Address

W. B. BAIR, Sec'y
Alvin Business League,
ALVIN, TEXAS.

RECEIVER'S SALE--Gainesville, Ga.

Finger & Shelly Shoe Factory to be disposed of.

I will sell at public outcry on May 3, 1898, in Gainesville, Ga., before the Courthouse door, within the legal hours of sale, provided no sooner sold at private sale, the Finger & Shelly Shoe Factory, together with all the machinery contained therein, Boiler, Shafting, Belts, Tools, etc.

The lot is near in and fronts two streets, containing about one acre. The buildings are of wood, tin roof. The main room, 36x210 feet, with L. 30x12, besides basements, office, boiler room, etc. Capacity 600 pairs per day.

Further information and full list of all the property will be furnished by the Receiver. Terms of sale's cash, on confirmation by the Judge Superior Court. J. R. BOONE, Receiver of

Finger & Shelly Mfg. Co.

Agency--Export.

Gentleman having ten years experience in export commission trade, conversant with Spanish, French, German and foreign market requirements, would represent manufacturers to foreign trade, or take charge of export department for A1 firm; is competent to act as resident buyer. Address "DONALD," Box 21, 1401 Third avenue, New York.

Iron Bridge FOR SALE.

Single Span Railroad Track Bridge, 150 feet long, built by Cofrode & Saylor in 1879; first-class condition to put up elsewhere. Address

J. H. MCCLURE & SON,

202 Walnut Place, PHILADELPHIA, PA.

For Sale at 50 Cents on the Dollar.

Complete Modern Fertilizer Plant.

The Buildings, which were erected specially for a Fertilizer Plant, are new and conveniently arranged.

MACHINERY IS NEW

and was constructed by well known designers and manufacturers of fertilizer appliances. It is in every particular of the

LATEST AND MOST IMPROVED TYPE.

The Plant is arranged for both Acid Phosphate and Ammoniated Goods, and is in full running order. Now ready to be put at work at its full capacity. The Plant has a

CAPACITY OF ABOUT 10,000 TONS per year in complete goods. The Territory within the scope of this Plant includes Delaware, Maryland, Virginia, New Jersey and Pennsylvania. About 5000 tons are consumed yearly in the territory immediately adjacent to the works.

TRANSPORTATION FACILITIES exceptionally good, both rail and water communication is convenient. The labor cost is low. This Modern Plant may be purchased for a comparatively small investment. We shall be pleased to open correspondence with any one interested in the trade.

WALKER & ELLIOTT,
WILMINGTON, DELAWARE, U. S. A.

FOR SALE CHEAP.

MILL PROPERTY

CONSISTING OF

Planing Mill Machinery and Manufacturing Plant, Double Story Building covering 5 city lots, located in heart of city on two main railroad lines.

Building admirably equipped for wood manufacturing purposes, all being in perfect order and ready for operation. Abundance and low price of raw material, together with low freight rates to jobbing centers, makes this an unexcelled point for wood manufacturing plant. Detailed particulars furnished on request.

BROBTON, FENDIG & CO.
BRUNSWICK, GA.

SPECIAL COMMISSIONERS' SALE

OF THE

Norfolk and Ocean View Railroad

3/4 Miles Norfolk to Ocean View; Standard Gauge; Electric Power;

ITS PROPERTY AND FRANCHISES, including the Ocean View Hotel Property.

Pursuant to a decree of the Circuit Court of the United States for the Eastern District of Virginia, we shall sell at PUBLIC AUCTION in front of the Custom-House, Norfolk, Virginia, on Wednesday, the 23d Day of March, 1898, at 12 O'clock M., the above referred-to property. For further information apply to W. W. OLD, CALDWELL HARDY, Special Commissioners, NORFOLK, VA.

WANTED TO SELL.

A \$1500 per year Bookkeeper's place, and a \$15,000 interest in a well-established business that paid over 20 per cent. dividend last year. Address WM. JONES, care Walsh & Wiedner, CHATTANOOGA, TENN.

WANTED.

A PARTNER

in a well-established wagon manufacturing business, situated in a progressive Southern city of 20,000 inhabitants. \$6000 buys a half interest. Money is needed to increase the plant so as to take care of increasing business.

For further information address W. P. H. care Manufacturers' Record.

FOR SALE.

Complete New Hosiery Mill Machinery Outfit.

Capacity over 100 dozen a day. Has not been run two years. Cost \$14,000. Will sell for \$8000 cash. Apply to

W. K. DANA, Westbrook, Maine.

VALUABLE WATER-POWER

FOR SALE.

In the Piedmont section of North Carolina on the Southern Railway and the South Yadkin River. Full copy of engineers report sent on application.

FRANK C. HAIRSTON,
Davie Co. Fork Church, N. C.

Beet Sugar Factory

Parties desirous of starting such plant will hear about good territory from

D. J. E., Manufacturers' Record.

ROBERT WARE GRASTY,
Attorney and Counsellor-at-Law,
EQUITABLE BUILDING,
ATLANTA, GA.

General law practice. Collections, loans, money invested, options secured and information furnished concerning Southern properties of all kinds.

Corporation Laws of West Virginia

Are the Best.

Charter is good in any state, no liability, signers furnished saving you \$40, consultation free.

INTER-STATE LAW ASSOCIATION,
CHARLESTON, W. VA.

Incorporate Your Business.

West Virginia Laws Most Liberal.

No Personal Liability. Non-Assessable Stock.

Plan mailed on application.

J. A. THAYER & CO., Attorneys,
Charleston, W. Va.

FOR SALE.

Up-to-date Wheel Factory

in one of the best Southern cities. 5 railroads. Capacity 150 sets of wheels per day. 10,000 finished spokes per day. Best of material right at door at cord-wood prices. Address

P. O. BOX L,
Meridian, Miss.

AGENTS WANTED—To Sell the

"Battle Ax" Hay Press.

Latest invention, Automatic, Ball Bearing, Compound Leverage, Self Contained. No gear wheels or springs. Full circle. Simple in construction, efficient in service. Write, prices, discounts.

ALABAMA FOUNDRY & MACHINE WORKS,
NEW DECATUR, ALA.

WANTED.

Machinery to Manufacture

We have a thoroughly equipped Machine shop, Carpenter Shop and Foundry, and can do all classes of Machine Work very reasonable. Try us.

SOUTHERN FOUNDRY & MACHINE WORKS,
FREDERICKSBURG, VA.

NOTICE.

We mine, manufacture, buy and sell all kinds of mineral paints, dry colors, minerals and clays. **ALPHA PAINT AND MINERAL CO.**, 338 Bourse Building, Philadelphia, Pa.

RARE OPPORTUNITY.

FOR SALE.

An Up-to-Date **Foundry & Machine Shop,**
AT ROME, GA.

Owing to the death of the owner, and the consequent necessity of winding up the estate for distribution, the J. A. George Foundry and Machine Works, of twenty years' standing, with an established and remunerative patronage, are offered for sale at a bargain. The business is now being run successfully by the administrator of the estate.

Address for price, terms and particulars.

SAM'L FUNKHOUSER, Administrator,
ROME, GA.

TIMBER LAND.

21,000 Acres Virgin Forest in best timbered section of West Virginia. Experts measured off several one acre blocks on N., S., E. and W. portions of this tract, and then measured the timber thereon, using Scribner's Lumber and Log Book. Best acre measured 30,027 feet B. M.; thinnest acre, 19,064 feet; general average, 30,271 feet per acre, divided as follows, viz: Hemlock, 19,016 feet; Spruce, 11,358 feet; Cherry, 2,778 feet; Maple, 2,077 feet; Birch, 1,013 feet; Sugar, 948 feet; Ash, 794 feet; Beech, 818 feet; and Cucumber, 270 feet. Total amount of merchantable timber on this tract (approximated)

863,962,000 FEET.

The Title is Guaranteed to be Absolutely Perfect. Price and terms very reasonable. Sworn statement of the experts and detailed information sent upon application to **THE SOUTHERN REAL ESTATE EXCHANGE**, Clarksburg, W. Va.

For Sale to Close Out Business.

26,000 ACRES OF LAND,

From 4 to 16 miles from Summerville, S. C. a noted health resort, containing long and short leaf pine, oak, hickory, ash, cypress, etc. Contains excellent farming and pasture land, and is convertible into a game preserve. Also second-hand machinery in good order.

A. W. TAYLOR LAND & LUMBER CO.
SUMMerville, S. C.

FOR SALE.

7000 Acres of Yellow Pine Timber Lands, on the Georgia Coast.
Address W. A. WILLCOX, Darien, Ga.

Bargains in Machinery FOR IMMEDIATE DELIVERY

FOR SALE. BARGAIN.

2 practically new E. P. Allis & Co. Compound Tandem Corliss Engines, 20 in. high, 30 in. low pressure, cylinders 48 in. stroke, shafts 12 in. diameter, 14 ft. long, fly wheels 24 ft. diameter, 76,000 lbs. each; will be sold at a bargain before removal.

THOS. C. BASSHOR & CO.
28 Light St., Baltimore, Md.

JOHN F. RILEY'S Machine Works,

6 and 8 South St., Charleston, S. C.

If in need of any New or Second-hand Machinery, I can supply your wants. If you have Machinery of any kind for Sale, send me a list of it; I can sell it for you. Special attention given to repairs.

FOR SALE.

Six H. P. Gas Engine in perfect order, used less than nine months. Complete with batteries, etc. Will sell cheap.

The Rubber Tire Wheel Co.
315 N. Broad Street, PHILADELPHIA.

SECOND-HAND ENGINES

FOR SALE CHEAP

BY THE

AMERICAN ENGINE CO.

Builders of the American Ball Engines and Electrical Machinery, BOUND BROOK, N. J.

CORLISS ENGINES 125, 150, 275, 300 H.P.

300 H.P. Armstrong & Sims, 100 H. P. Payne Engine; also Second-Hand Boilers in sizes from 40 to 125 H. P. So to 100 engines in stock to select from. Advise us of your wants.

S. L. HOLT & CO.
67 SUDSBURY STREET, BOSTON, MASS.

FOR SALE.

One second-hand "BERRYMAN" HEATER AND PURIFIER, in perfect condition and guaranteed good as new. Will sell cheap for cash

Address **M. F.**, care Mfrs. Record, Baltimore, Md.

FOR SALE

One 10, 15 and 25 H. P. Double Cylinder Single Drum Hoisting Engine; also same size Double Cylinder Double Drum, either with or without boilers.

ADDRESS

REUTER & MALLORY,
Baltimore, Md.

FOR SALE.

ENGINES for Blast Furnaces, Foundries, Converters and Rolling Mills, MILL TRAINS (3-high), 46 in., 30 in., 20 in., 18 in., 12 in. and 6 in. SHEARS for Blooms, Billets, Plates, Sheets, Old Rails and Scrap. CRANES—Vale and Towne Pillar Crane 10-ton, Jib Cranes, Iron and Wooden. STEAM HAMMERS, various sizes and makes. SQUEEZERS (Rotary). FLY WHEELS and BAND WHEELS, various sizes. Punches, Straighteners, Roll Lathe, Riveter, Machine Shop Tools, etc., etc. LOCOMOTIVES, various gauges, sizes and styles.

B. M. EVERSON,
301 Smithfield Street, PITTSBURGH, PA.
Sales Agt. BALDWIN LOCOMOTIVE WORKS,
Philadelphia, Pa.

BARGAINS! DYNAMOS IN STOCK.

Incandescent—16, 30, 35, 40, 50, 60, 100, 125, 150, 200, 250, 300, 350, 425, 450, 500, 540, 650, 750, 1000 Light.

Arc—9, 18, 20, 25, 30, 35, 40, 45, 50, 60, 65 Light; 1200 C. P. or 2000 C. P.

Alternators—500, 600, 650, 750, 1000, 1300, 2000 Light.

Power Generators—20, 25, 30, 35, 40, 45, 50, 60, 75, 100 Horse Power.

All of Standard makes, principally Edison, Thomson-Houston, Westinghouse, Brush. Send for monthly BARGAIN SHEET giving complete list with prices. Also Motors, Arc Lamps, Instruments and Supplies.

CHAS. E. GREGORY COMPANY,
58-60-62 Clinton St., CHICAGO.

FOR SALE.
One Morgan Traveling Crane,

Ten tons capacity, span 45 feet 6 inches.

In first-class condition.

THE WESTINGHOUSE MACHINE CO.
PITTSBURGH, PA.

BARGAINS in New and Second-Hand MACHINERY.

Lathes from 12" to 48", Planers from 20" up to 60", 48", 54" and 60" Radial Drills, No. 2 Newton Milling Machine, No. 2 Screw Machine, Shapers from 6" to 30", Boilermakers' Punches, Shears, Edge Planers, Rolls, Drills, Engines, Boilers, Pumps and Dynamos.

FRANK TOOMEY, 131 N. THIRD ST., PHILA.

FOR SALE.

1 Harris Corliss Engine, 12x30; fly wheel 10 ft. diameter, 18 in. face.

1 80 H. P. Boiler, 16 ft. long, 60 in. diameter; 46 flues, 2 safety valves.

3 small Knowles Pumps.

1 Submerged Ammonia Condenser (for 15-ton ice plant), with iron tank.

2 Ammonia Compressors, 10x10, belt driven.

Also, lot of Old Plates, Pipe Valves, Pulleys, &c., and Old Iron.

Situated at Raleigh, N. C.

For particulars apply to

HENRY BAYER & SON,
CHARLESTON, S. C.

For Sale—Narrow Gauge Equipment.

1 Baldwin locomotive, 1 passenger coach, 1 combination baggage and passenger coach, 2 box cars, 2 flat cars, 5 miles of light steel relaying rails from 16 to 30 pounds. Also 2 winter street cars and 3 summer street cars all in good condition. Also 2 new double flue boilers, 25 ft. long x 8 in. circumference. Will sell cheap for cash. Write **SABEL BROS.**, JACKSONVILLE, FLA.

FOR SALE

8 3-ft. gauge Locomotives.

1 Standard gauge Locomotive.

2 1 1/2-yard Steam Shovels.

6 3-ft. gauge 3 yard Dump Cars.

25 new 3-ft. gauge 2 1/2-yard Cars, for shovel or hand work.

5 side and centre Unloading Plows.

1 Leveling Car with plow.

10 Hoisting Engines.

6 Centrifugal Pumps.

Large stock of Engines, Boilers and Steam Pumps.

THOMAS CARLIN'S SONS,
ALLEGHENY, PA.

SPECIAL BARGAINS.

We have on hand

Twelve Good Standard Gauge Locomotives, thoroughly overhauled, complete in every detail; ready for immediate service. Various styles and sizes. Prices very low.

For full particulars apply to

POULTERER & CO.
206 Bullitt Building, PHILADELPHIA, PA.

LOCOMOTIVES

ADAPTED TO A VARIETY OF USES.

All of the Lake Street Elevated R. R. Engines have had less than three and some of them less than one year's wear.

Weight, 28 to 30 tons. Twenty tons on Drivers. Diameter of Drivers 44 inches.

FOR SALE.
SPLIT SWITCHES
 for 30 lb. rail, (3 ft. gauge of track), including 4 ft. or 6 ft. Frog, Ground Lever, Switch Points and Connecting Rods.

New and Relaying Steel Rails
 Bought and Sold.
ROBINSON & ORR,
 419 Wood St., PITTSBURGH, PA.

Relaying Rails, Locomotives and Cars for Sale.

When in the market please write us for prices, either for cash or on the monthly instalment plan; we sell either way. We handle steel and iron rails weighing from 12 lbs. to 60 lbs. per yard, both new and relaying. We can also furnish any size and style of locomotives and cars desired.

THE SMITH & KILBY COMPANY,
 ANNISTON, ALABAMA.

FOR SALE.
Several Shay Patent
Logging Locomotives.
 Also other logging locomotives and cars.

M. MITSKUN & CO.
 Wight St. near Meldrum Ave., Detroit, Mich.

FOR SALE.
 88 tons of 28-lb. TEE RAILS, 200 tons of 30s, 48 tons of 45s and 300 tons of 50s, with Flap Plates and Spikes; cheap; also 2-ft. and 3-ft. Gauge Locomotives and Cars. Write for particulars.

A. FOGG,
 308 Walnut Street, PHILADELPHIA, PA.

Prompt Cash Paid
 For Old Rail, Axles, Car Wheels and heavy Iron and Steel Scrap of all descriptions.

DALLETT & CO.
 201 Walnut Place, PHILADELPHIA, PA.
 DEALERS IN
 High-Grade Bar Iron, Railway Supplies, etc.

STEEL RAILS
FOR SALE.

NEW STEEL RAILS, all weights.
 CASH OR INSTALMENT PLAN.

RELAYING and SCRAP RAILS
 Bought and Sold.

Several Standard Gauge Dummy Locomotives, Suitable for Logging and Suburban Railways.

THE STEEL RAIL SUPPLY CO.,
 Successors to HUMPHREYS & SAYCE,
 100 Broadway, NEW YORK, N. Y.

Either for Cash **SPECIAL SALE** **Or on Easy Terms.**

Excellent Lot of **HEAVY PASSENGER and FREIGHT LOCOMOTIVES** and First-Class

PASSENGER, COMBINATION and FREIGHT CARS

Selected by our own experts from amongst some of the finest lots of Second-hand Equipment that have ever been offered by any of the Leading Trunk Lines of this country. The larger part of the Passenger Cars are Equipped with Four and Six-Wheeled Trucks, Westinghouse Air Brakes, Janney and Miller Couplers, Plush Seats, Spear Heaters, Bronze Trimmings and all modern Improvements. For Specifications, Photographs, Prices and Terms address

NEW YORK EQUIPMENT CO., 80 Broadway, N. Y.

LOGGING CARS,
LIVE ROLLS,
DRY KILNS, *and* **SECOND-HAND**
IRON KILN TRUCKS **LOCOMOTIVES**
 UNION IRON WORKS CO., Selma, Ala.

WEST PASCAGOULA CREOSOTE WORKS,
 West Pascagoula, Miss.

Situated on Pascagoula Bay and on the line of the Louisville & Nashville Railroad. These works have been in operation for more than twenty years, were recently entirely rebuilt and enlarged, and are now prepared to execute all orders for creosoted piles and timber thoroughly impregnated with dead oil of coal tar. New cylinders 115 feet long. Capacity one million feet per month. Address

J. N. HUSTON,
 Supt. West Pascagoula Creosote Works, West Pascagoula, Miss.

HIGH-GRADE LOCOMOTIVES.

New York Elevated Railroad and Brooklyn Bridge Locomotives.

These Locomotives are Standard Gauge, until recently in service on the above-mentioned railroads, being suitable for use on Logging and Suburban roads, and for switching purposes.

They have been discontinued from service because of the introduction of electricity and the replacement by heavier locomotives; therefore, not offered for sale on account of their inefficiency.

They are all in thoroughly good condition, and expert examination is invited. For prices and illustrated descriptions address

BENJAMIN WATSON,
 Coffee Exchange Building,
 66 Beaver Street, NEW YORK CITY.

RELAYING STEEL RAILS.

FOR SALE.

One Standard gauge 22-ton Porter, saddle tank, switching locomotive, cylinders 12x18; 1 standard gauge 15-ton Baldwin-Forney type, 16x14; 3-ft. gauge, 12-ton Shay geared locomotive; 1 3-ft. gauge, saddle tank, 9-ton Porter, cylinders 8x12; 1 3-ft. gauge, 12-ton saddle tank Porter, cylinders 10x14; 1 3-ft. Baldwin-Mogul, 18-ton, cylinders 12x18; 100 tons 30-lb. iron rails in Tennessee; 250 tons 25 and 30-lb. rails in Louisiana; 20 second-hand logging cars, 3-ft. gauge. Write for prices.

HASKINS WILLIAMS & CO.
 1916 Morris Ave., BIRMINGHAM, ALA.
 Wanted—Relay Rails and Scrap Iron for Cash.

FOR SALE.

RAILS and ROLLING STOCK

1500 tons 60-lb. Relaying Rails with Splices. 500 tons 56-lb. Relaying Rails with Splices. 1000 tons new Steel Rails, 48 lbs., with Splices and Spikes. 1000 tons new Steel Rails, 45 lbs., with Splices and Spikes.

Lot of narrow gauge engines, flat and box cars, at Galveston, Texas. Call or write.

BLOCK-POLLAK IRON CO.
 CINCINNATI, OHIO, or CHICAGO, ILL.
 We are always in the market to buy or sell rails and scrap iron of all kinds for cash.

FOR SALE.

Relaying Rails.

This company has for sale 2000 Tons of 60-lb. Relaying Rails, From the New England R. R.

500 Tons of 50-lb. Relaying Rails, 150 Tons of 52-lb. Relaying Rails, From the Norfolk & Western R. R.

Can be delivered most favorably in the South. Address

BENJAMIN IRON & STEEL CO., Buffalo, N. Y.
 We are always in the market to buy or sell old material.

RAILROAD EQUIPMENT for Sale

Relaying Rail and Splices, Locomotives, Coaches and Freight Cars.

HICKMAN, WILLIAMS & CO.
 LOUISVILLE, KY.

RAILS and LOCOMOTIVES

We have a lot of RELAYING RAILS with fastenings, 16 pounds to 56 pounds with fastenings. Also 12-ton, 15-ton, 25-ton and 30-ton LOCOMOTIVES. If in the market for RAILWAY EQUIPMENT write us for prices and specifications.

SOUTHERN IRON & EQUIPMENT CO., Atlanta, Ga.

Relaying Rails.

Second-hand equipment and light new Steel Rails

L. E. HIRSCH, 549 Rookery Bldg., Chicago.

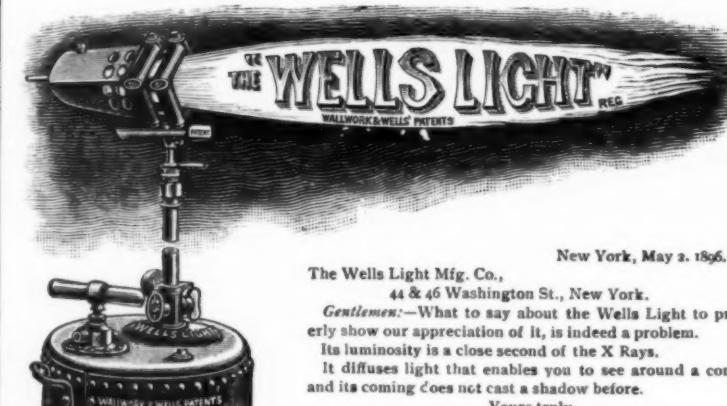
CARS

MINING, LOGGING, PLANTATION, CONTRACTORS' and SMALL CARS OF ALL KINDS.

Wheels, Axles, Irons, &c.

Send for Catalogue.

GEO. PEACOCK, Selma, Ala.



New York, May 2, 1896.

The Wells Light Mfg. Co., 44 & 46 Washington St., New York. Gentlemen:—What to say about the Wells Light to properly show our appreciation of it, is indeed a problem. Its luminosity is a close second of the X Rays.

It diffuses light that enables you to see around a corner and its coming does not cast a shadow before.

Yours truly,
 THE INGERSOLL-SERGEANT DRILL CO.

800 to 2,000 Candle Power from Kerosene Oil.

PORTABLE. SELF-CONTAINED. AUTOMATIC.
UNAFFECTED BY WEATHER.

12,000
...IN USE...

400 Railroads and over 500 Contractors now use the
WELLS LIGHT.

The Wells Light Mfg. Co.

EDWARD ROBINSON, Sole Proprietor.

Cor. Washington and Morris Streets, NEW YORK.
 WRITE FOR CIRCULAR.

THE CINCINNATI SAFE AND LOCK CO.

—MANUFACTURERS OF—

((SAFE))

BANK LOCKS AND VAULT WORK,

CINCINNATI.

Office and Factory, 59, 61, 63, 65 and 67 Elm Street.
 G. V. HALLIDAY, President and Treasurer.

CREOSOTED **PILES, LUMBER**
and CROSSTIES

Treated with Dead Oil of Coal Tar.

PINOLINE ROOFING PAINT.

Durable, Elastic and Cheap

Highest Antiseptic Qualities. Insoluble in water.

FOR PRICES WRITE

FERNANDINA OIL & CREOSOTE WORKS, Fernandina, Fla.

VENEERS AND HARDWOOD LUMBER.

Importers of
 Mahogany and Foreign Woods,
 Manufacturers of
 DOMESTIC & FOREIGN
 Hardwood Lumber and Veneers,
 Cigar Box Lumber.

The E. D. Albro Co.

VENEER CUTTING
AND BAND SAW MILLS.

CINCINNATI, O.

EASTERN BRANCH, Corner Sixth and Lewis Streets, E. R., New York

POCAHONTAS COAL

**A Fuel Unequalled for the Generation of Steam
and for Domestic Purposes. • • • •**

It enjoys the distinction of being the only coal that has been officially endorsed by the Government of the United States and Great Britain

It is used exclusively by the Cunard and White Star Steamship Companies, and by its use they have made all the great records of recent years.

Exhaustive tests made by Leading Manufacturers of the Country have shown it to be the most Economical Fuel for their use, as it will generate steam faster and in larger quantities than any other American coal.

The output of the mines during the year 1897 amounted to 4,500,000 tons.



CASTNER, CURRAN & BULLITT,
SOLE AGENTS FOR THE
POCAHONTAS
Semi-Bituminous Smokeless Coal.

MAIN OFFICE:

328 Chestnut Street, Philadelphia, Pa.

BRANCH OFFICES:

1 Broadway,

New York.

70 Kilby Street, Boston, Mass.

Progress Building,

Norfolk, Va.

Terry Building, Roanoke, Va.

Old Colony Building, Chicago, Ills.

Neave Building, Cincinnati, Ohio.

4 Fenchurch Avenue, London, England.

STEEL CHATTANOOGA STEEL ROOFING CO.
Manufacturers, CHATTANOOGA, TENN.
Celebrated Crows' Patent.
CORRUGATED IRON
And 12 other styles.
Eave Trough, Conductor Pipe and Roof Paints.

ROOFING WRITE FOR PRICES.

ART STAINED GLASS---PAPIER MACHE.

HIGH CLASS WORK ONLY.
FIGURE AND MEMORIAL WINDOWS
OUR SPECIALTY.

L. GROSSE ART GLASS WORKS, 922 Penn Ave., PITTSBURGH, PA.

T. H. BROOKS & CO. CLEVELAND, O.
FLOOR & SIDEWALK LIGHTS,
OF EVERY DESCRIPTION.
SEND FOR CATALOGUE.

SOFT STEEL
BARS
BILLETS
SHEETS
TIN & TERNE PLATE

RAILS, LIGHT SECTIONS
HEXAGONS, TEES, ANGLES
AND SPECIAL SHAPES.
MERCHANT BARS
ALL SIZES.

ETNA STANDARD IRON & STEEL AT BRIDGEPORT, OHIO, U. S. A.
Works at Bridgeport and Mingo Junction, O.

CAPITALS, BRACKETS,
MOULDINGS, FESTOONS ETC. ETC.
SOLE AGTS. FOR CHAS. EMMEL

LUDLOW SAYLOR WIRE CO.

Northeast Corner Fourth and Elm Streets, ST. LOUIS, MO.
ARTISTIC METAL WORK
In Brass, Wire and Wrought Iron. Elevator Enclosures and
Cabs, Bank and Office Railings, Grilles, Fences, etc.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

DIES, SHEARS,
DROP HAMMERS
and special machinery for working

SHEET METAL

No. 97 "Bliss" Double Crank Press
Manufacturers of the Waldron Friction Clutches.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

DIES, SHEARS,
DROP HAMMERS
and special machinery for working

SHEET METAL

No. 97 "Bliss" Double Crank Press
Manufacturers of the Waldron Friction Clutches.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

DIES, SHEARS,
DROP HAMMERS
and special machinery for working

SHEET METAL

No. 97 "Bliss" Double Crank Press
Manufacturers of the Waldron Friction Clutches.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

DIES, SHEARS,
DROP HAMMERS
and special machinery for working

SHEET METAL

No. 97 "Bliss" Double Crank Press
Manufacturers of the Waldron Friction Clutches.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

DIES, SHEARS,
DROP HAMMERS
and special machinery for working

SHEET METAL

No. 97 "Bliss" Double Crank Press
Manufacturers of the Waldron Friction Clutches.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

DIES, SHEARS,
DROP HAMMERS
and special machinery for working

SHEET METAL

No. 97 "Bliss" Double Crank Press
Manufacturers of the Waldron Friction Clutches.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

DIES, SHEARS,
DROP HAMMERS
and special machinery for working

SHEET METAL

No. 97 "Bliss" Double Crank Press
Manufacturers of the Waldron Friction Clutches.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

DIES, SHEARS,
DROP HAMMERS
and special machinery for working

SHEET METAL

No. 97 "Bliss" Double Crank Press
Manufacturers of the Waldron Friction Clutches.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

DIES, SHEARS,
DROP HAMMERS
and special machinery for working

SHEET METAL

No. 97 "Bliss" Double Crank Press
Manufacturers of the Waldron Friction Clutches.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

DIES, SHEARS,
DROP HAMMERS
and special machinery for working

SHEET METAL

No. 97 "Bliss" Double Crank Press
Manufacturers of the Waldron Friction Clutches.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

DIES, SHEARS,
DROP HAMMERS
and special machinery for working

SHEET METAL

No. 97 "Bliss" Double Crank Press
Manufacturers of the Waldron Friction Clutches.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

DIES, SHEARS,
DROP HAMMERS
and special machinery for working

SHEET METAL

No. 97 "Bliss" Double Crank Press
Manufacturers of the Waldron Friction Clutches.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

DIES, SHEARS,
DROP HAMMERS
and special machinery for working

SHEET METAL

No. 97 "Bliss" Double Crank Press
Manufacturers of the Waldron Friction Clutches.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

DIES, SHEARS,
DROP HAMMERS
and special machinery for working

SHEET METAL

No. 97 "Bliss" Double Crank Press
Manufacturers of the Waldron Friction Clutches.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

DIES, SHEARS,
DROP HAMMERS
and special machinery for working

SHEET METAL

No. 97 "Bliss" Double Crank Press
Manufacturers of the Waldron Friction Clutches.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

DIES, SHEARS,
DROP HAMMERS
and special machinery for working

SHEET METAL

No. 97 "Bliss" Double Crank Press
Manufacturers of the Waldron Friction Clutches.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

DIES, SHEARS,
DROP HAMMERS
and special machinery for working

SHEET METAL

No. 97 "Bliss" Double Crank Press
Manufacturers of the Waldron Friction Clutches.

E. W. BLISS CO.

137 Plymouth St.
BROOKLYN, N. Y.
96 W. Wash'n St.
CHICAGO, ILL.

Owners of THE

STILES SPARKER

PRESS CO.

100 page Catalogue of

PRESSES

PITTSBURGH PLATE GLASS CO.

LARGEST PRODUCERS OF PLATE GLASS IN THE WORLD.

Manufacturers of Polished Plate and Silvering Plate of all thicknesses.
SKYLIGHT AND FLOOR GLASS.

Pittsburg: Carnegie Building New York: 49-53 LaFayette Place. Boston: 30 Sudbury St. Philadelphia: 1012 1018 Filbert St. Chicago: 442-452 Wabash Ave. Cincinnati: 115-117 W. Front St. St. Louis: 12th & St. Charles Sts. Minneapolis: 124-128 N. 3d St. Detroit: 138-140 Jefferson Ave

GLASS BENDING A SPECIALTY.

COLUMBUS, OHIO.—
Railway and Highway Bridges, Roofs, Girders, Turntables,
Special Fergings, etc.

THE NEW COLUMBUS BRIDGE CO.



RAW HIDE
WATER PROOF
PAPER.

RAW-HIDE PAPER

is waterproofed thoroughly throughout the sheet, and not simply coated; it is perfectly clean to handle and unrolls freely in any temperature.

C. S. GARRETT & SON, Paper Makers,
PHILADELPHIA.

12 and 14 Decatur Street,

CORRUGATED

SIDING

For siding Factories,
Warehouses, Coal Sheds,
Wharves, Stations, Grain Elevators,
Blast Furnaces, Houses and Barns.

WRITE FOR SPECIAL CIRCULAR.

The Cincinnati Corrugating Co.
Box 377, PIQUA, OHIO.

THE EXPANDED METAL

SYSTEM OF FIRE-PROOFING

covers a construction of light concrete floors
with imbedded sheets of heavy metal insuring
strength for any requirement.

Expanded Metal Steel Plastering Lath

Is the standard metal lath in all markets. Used by the United States Government and all first-class architects throughout the world.

Write for illustrated book containing full information, free by mail.

Northwestern Expanded Metal Co., - Chicago | New York Expanded Metal Co., - New York
Central Expanded Metal Co., - Pittsburgh | Southern Expanded Metal Co., - Washington
Eastern Expanded Metal Co., - Boston | Expanded Metal Fireproofing Co., - Chicago
Manhattan Concrete Co., New York and Boston | Merritt & Company, - Philadelphia

THE PHILADELPHIA STEEL ROOFING CO.
MANUFACTURERS OF
STEEL ROOFING AND CORRUGATED IRON.
614, 616 & 618, BEACH ST.
PHILADELPHIA, PA.
SEND FOR CATALOGUE AND PRICES.

Results Assured

BY THE USE OF

Fire-Felt Non-Conducting Coverings.

Asbestos formed into felt is replete with cellular tissues and creates Fire-Felt. More confined air spaces in Fire-Felt than any other covering on the market.

ABSOLUTELY FIRE-PROOF. NOT AFFECTED BY MOISTURE,
EASILY APPLIED

Sheets for Boilers, Flues, etc., and Cylindrical Sections for Pipes.

H. W. JOHNS MANUFACTURING CO.

100 WILLIAM STREET, NEW YORK.

Philadelphia. Chicago. Boston.

Flue covered with 1/4 in. sheet Fire-Felt, Hexagonal Wire Cloth and Cement Feltting.

THE ARMITAGE MANUFACTURING COMPANY, Richmond, Va.
GRAVEL, SLAG and COMPOSITION ROOFERS,

MANUFACTURERS OF

TWO AND THREE-PLY ASPHALT READY ROOFING.
for roofs of any description, water, acid and fire proof; more durable than metal, easily applied.
Tarred Felts, Building, Sheathing and Insulating PAPERS, Roofing Pitch, Paving Pitch, Roof Paints and Roof Coating, Black Varnish, Ammonia, etc. Write for Samples, Prices and Catalogues.
Quality and Workmanship Guaranteed.

ROOFING and SIDING

Steel and Iron; Painted and Galvanized
of all kinds; also

CORRUGATED IRON,

Write us for prices and special inducements to
the trade. GEDGE BROS. IRON ROOFING CO.,
Box 476 ANDERSON, IND.

ROOFING.

The best Red Rope Roofing for 1 cent per
square foot, caps and nails included. Substitutes
for plaster and siding. Samples free.

THE FAY MANILLA ROOFING CO.
CAMDEN, N. J.

NATIONAL

ROOFING & SUPPLY CO.

LOUISVILLE, KY.

Gravel Roofers,

Cement and Asphalt Pavers,

Building Papers,

Two and Three-Ply Ready Roofing.

Canvas Back

Put up in 500 and 250 sq.
ft. rolls, 36 in. wide.

— Red Rope —

Tin caps and nails
packed in each roll

Roofing & Sheathing

Waterproof, Air Tight, Durable.

Complete line of Building and Sheathing Papers

GARRETT-BUCHANAN CO.

3, 5 & 12 Decatur St., PHILADELPHIA, PA.

Cortright

METAL . . . SHINGLES

Are recognized
as the best, both
in Construction
and Material
used

Illustrated Catalogue
Prices and Sam-
ples free.

Cortright Metal Roofing Co.

501 N. 23d St., Phila. 134 Van Buren St., Chicago

SLATE ROOFS

JOHN GALT & SONS,

283 Broadway, NEW YORK.

915 N. Y. Life Building, CHICAGO.

LOOK THE BEST...
LAST THE LONGEST.

Write for Free Book
and lowest prices.

TOOLS and
SLATE DRESSERS.

STANDARD OIL COMPANY, (OF NEW YORK.)

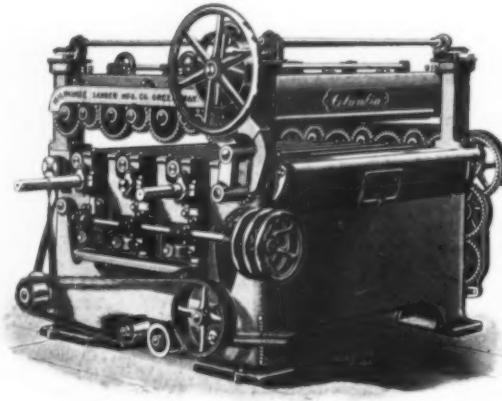
GEO. H. HOPPER DEPT.

GRAPHITE PAINTS

Not affected by Heat, Cold, Acid or Water.

Also all kinds of Linseed Oil and ASPHALT PAINTS.

26 Broadway, NEW YORK.



The new COLUMBIA Sander easily wins the race, and you'll no doubt be glad to know all about its good points. Drop a line to nearest sales department.

AMERICAN WOODWORKING MACHINE CO.

109 Liberty Street, NEW YORK.
45 S. Canal Street, CHICAGO.
94 Pearl Street, BOSTON.
Church and Basin Sts., WILLIAMSPORT, PA.



SAWING MACHINERY

Double Cut-off Saws,

Scroll Saws, Saw Benches, Combination Rip and Cut-Off Saw Tables, Tilting Table Saw Benches, Steel Saw Arbors.

Patent Saw Gauges, etc.

Address **H. L. BEACH**,
Montrose Pa.

THE ROBINSON OILS

"they lubricate more, and outlast other oils."

High-Grade,
Cylinder, Engine, Spindle,
Dynamo Oils.

Oils for all types of Machinery.

GREASES.

WM. C. ROBINSON & SON,
217 South Street, BALTIMORE, MD.

THE CLEVELAND WIRE SPRING CO., Cleveland, Ohio.

Oil Tempered
Steel Springs
for all purposes
a specialty.

PAT. STEEL WIRE PIPE BENDERS.



Upholstery,
Lounge,
Bed and Chair
Springs, etc.

PAT. STEEL WALL TIES.



LANE MFG.CO.
MONTPELIER, VT.
WOODWORKING MACHINERY.
SPECIALTIES
LANE'S PATENT LEVER SET CIRCULAR SAW MILL.
SAW MILL SET WORKS.

CLAPBOARD MACHINERY.
SHINGLE MACHINES.
LATH MACHINES.
SWING SAW RIGS.
LOG JACKERS.
WATER WHEELS.

PLANING MACHINES.
MATCHING MACHINES.
GANG EDGERS.
PULLEYS, SHAFTING.
HANGERS, ETC.

Send for our Circular.



PATENT . . . LATHES

For turning Axe, Adze, Pick, Sledge, Hammer, Hatchet, Auger, File, Knife, Chisel, Fork, Hoe, Rake, Broom and Mop HANDLES, Pike Poles, Whiffletrees, Yokes, Spokes, Porch Spindles, Table Legs, Tent Stakes, Ball Bats, Mallets, etc.

Boring Machines, Sanders
Chuckling Machines,
Shapers, Special
Machinery.

The Ober Lathe Co.
Chagrin Falls, Ohio, U. S. A.

FOR THE BEST MACHINERY

For Shingles, Heading and Staves,

VEENEER CUTTERS

AND IMPROVED

Gauge Lathes

FOR TURNING

HANDLES, ETC.

Address

Trevor Mfg. Co. { Successors to LUMPPET
TREVOR & CO. E. T.

26 to 36 Butler Street, CINCINNATI, O.

WOODWORKING MACHINERY.

Cooperage Machinery.
Holmes Variable Speed Countershaft.

SEND FOR CATALOGUES.

E. & B. HOLMES MACHINERY CO., Buffalo, N. Y.

FREE. If you will give us your name and address we will mail you a Catalogue and Price-list of one of the largest lines of

Wood Working Machinery
in the country.
CORDESMAN MACHINE CO.

1318 Market St., Chattanooga, Tenn.

"Ironsides" Two Saw Lumber Trimmer.
A model of perfection in design, construction and efficiency.
Our circular tells all about it.

CHATTANOOGA MACHINERY CO.

1318 Market St., Chattanooga, Tenn.

SAW MILLS.

ENGINES.

Write for Prices.

Chambersburg Engineering Co., Chambersburg, Pa.

See illustrated ad, first issue each month.

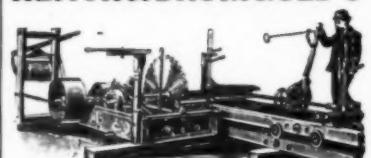
SAW MILLS, GANG EDGERS, etc.

If you want to buy or handle good ones write

STANDARD SAW MILL MACHINERY CO.

911 E. 12th Street, ERIE, PA.

HENCH & DROMGOLD'S



SAW MILL AND ENGINES

A wonderful improvement in Friction Feeds and Gig-Bucks. Back motion of Carriage three times as fast as any other in the market. Friction Clutch Feed, causing all the feed gearing to stand still while bucking; great saving in power and wear. Write for circulars and prices; furnished free upon application. Also Spring Tooth Harrows, Hay Rakes, Cultivators, Corn Planters, Shellers, etc. Mention this paper.

HENCH & DROMGOLD, Manfrs., YORK, PA.

If you wish to keep posted on the progress of the South, read the Manufacturers' Record. Price \$4.00 a year.

WOOD WORKING MACHINERY

of all kinds for Sash, Door and Blind Factories, Planing Mills, Furniture, &c. Also builders of Carpet Looms, Air Compressors, Bench Vises, Bicycles, &c.

Send for Souvenir Catalogue.

H. B. SMITH MCH. CO., Smithville, Bar Co., N. J.

FRANKLIN F. DAVIS.

Contracting Engineer.

Steam Power Plants.

Saw Mills. Shingle Mills.

Logging Railroad Equipment.

Plans and estimates furnished on application.

406 Austell Building, ATLANTA, GEORGIA.

THE FARQUHAR SAW MILL

VARIABLE FRICTION FEED, Most Accurate Set Works Made.

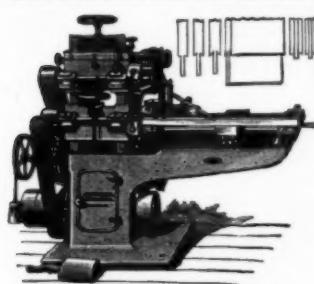
QUICK RECEDDING HEAD BLOCKS.



PORTABLE, STATIONARY & TRACTION Engines and Boilers a specialty. Send for catalogues to **A. B. FARQUHAR CO., Ltd., YORK, PA.**

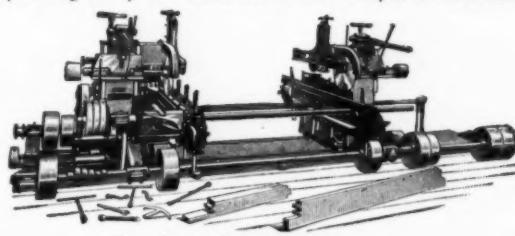
HIGH GRADE MACHINERY

For Car Shops, Planing Mills, Furniture and Chair Factories, Wheel and Vehicle Makers, Etc.



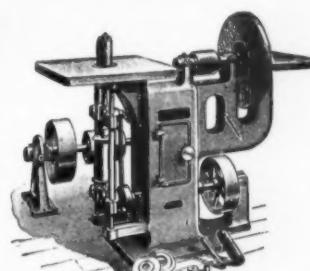
No. 3½ Sash and Door Tenoner.

More of our
Machinery
is in use
and more is sold
today than
any other make.

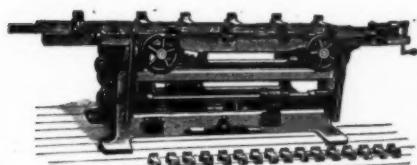


No. 7 Automatic Double Car Tenoner.

Your correspond-
ence is solicited.
Printed matter
and prices
furnished
on application.



No. 2½ Vertical Single Spindle and Disk Sander.



No. 1 Automatic Door and Blind Clamp.

J. A. FAY & CO.

270-290 W. FRONT ST.

CINCINNATI, O.



No. 2½ Four-Roll Double Cylinder Planer and Matcher.

MANUFACTURERS

MADE FROM FINEST
SELECTED STEEL.
SOLID TOOTH.



E. C. ATKINS & CO.
Indianapolis, Ind.

BRANCH HOUSES { Memphis, Tenn.
Chattanooga, Tenn.
Minneapolis, Minn.

MANUFACTURERS

TEMPERED BY
NATURAL GAS.
INSERTED TOOTH.



ATKINS' SILVER STEEL BAND
SAWS TAKE THE LEAD.

Write for Sawyer's Hand Book of
Saws and Saw Tools.

TRADE
SILVER STEEL
MARK

CIRCULAR, BAND, GANG, DRAG, CROSS-CUT, HAND AND SAWS
OF EVERY DESCRIPTION. CYLINDER SAWS RE-STEELLED.

Our Improved
Detachable
Steel Roller Bearing
LUMBER TRUCKS
have four or more
supports for the
lumber in endway
piling.

WARRANTED FIRE-PROOF.



Write for
Testimonials

That this is the original and
only process employing HOT WET AIR UNDER PRESSURE for
seasoning Lumber—that literally boils the water from the wood—is established
by virtue of PATENT ALLOWED SEPTEMBER 12th, 1896. OTHER PATENTS PENDING.

GOLDEN'S FOUNDRY & MACHINE CO., Columbus, Ga.

Manufacturers of
Hangers, Shafting, Machine Moulded Pulleys.

Send for Price List
and
Discount Sheet.

COUPLINGS, PILLOW BLOCKS, FLOOR STANDS, COLLARS, &c.

**10,000 OIL-BARREL STAVES
EVERY 10 HOURS.**

See Circulars.

Baxter D. Whitney
WINCHENDON,
MASS.



CORDESMAN, MEYER & CO.

27, 29, 31 Central Avenue, CINCINNATI, OHIO.

FINE GRADES OF LATEST
WOOD
WORKING

Machinery
of Every Description.



For...
Planing Mills,
Furniture and
Chair Factories,
Carriage, Wagon,
Agricultural
Works, etc.

Write for Circulars and
Prices.

97

Catalogue free by mentioning the Manufacturers' Record.
The DeLoach variable friction feed SAW MILLS, PLANERS,
and SHINGLE MACHINES, HAY PRESSES, GRINDING
MILLS, CANE MILLS, ENGINES, BOILERS, WATER
WHEELS, ELEVATORS, Etc. Immense sales and good re-
sults. Why? Because they are THE BEST. Don't fail to
call on us at the Tennessee Centennial.

DELOACH MILL MANUFACTURING CO., Atlanta, New York, St. Louis.

LOWELL MACHINE SHOP,
LOWELL, MASS.
Cotton Machinery

We Manufacture Everything Required
for the Complete Equipment of Cotton Mills.

Plans and Estimates Furnished on Application.

Correspondence Solicited.

CARDS.

MASON

MACHINE WORKS,

COTTON MACHINERY,
TAUNTON,
MASS.

FRAMES

MULES.

LOOMS.

BRANSON KNITTING MACHINES

X AUTOMATIC, PLAIN AND FAMILY.

Ribbers single and double feed. Write for full particulars.

Branson Machine Co., 506 St. John Street, Philadelphia, Pa.

Robert W. Scott

ESTABLISHED 1863.

Louis N. D. Williams

**SCOTT & WILLIAMS,
BUILDERS OF
KNITTING MACHINERY.**

Office & Works:
2079 E. Cumberland St.

Cable Address.
Scoville
Philadelphia, Pa. S.A.

The Latest and Best

Looms, Harness Motions and Dobbies,
Beaming, Spooling, Winding, Dyeing and
Sizing Machinery, Power Transmitting
Machinery, Freight Elevators.

FAIRMOUNT MACHINE COMPANY,

Twenty-Second and Wood Streets, - PHILADELPHIA, PA.

Steam Engines
and Boilers.
Ice Machines.
Open Hearth
Steel Foundry
Equipment.
Water Works.

**COTTON
COMPRESSES**
STEAM AND HYDRAULIC.

THE VULCAN WORKS, Chester, Pa.

Rolling Mill Work.
Valves and Cocks
For Heavy Pressure
Cranes and
Accumulators.
Steam, Water and
Ammonia Fittings.
Iron, Brass and
Steel Castings.

REEDS AND

J. A. GOWDEY & SON,
Providence, R. I.
ALSO CHICOPEE, MASS.

SIXTY YEARS ESTABLISHED.

WRITE FOR PRICES.

HARNESSES

SAVOGRAN

Cleans Wool, Mill Floors, ANYTHING.

FOR COTTON AND WOOLEN MILLS.

Standard Articles for their Purposes.

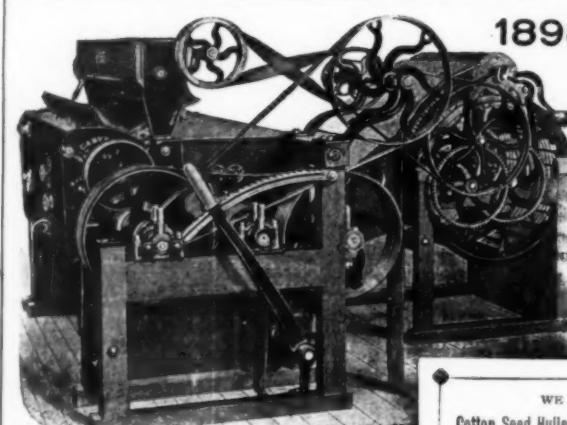
INDIA ALKALI WORKS, 77 Broad Street, Boston.

LOOMS

Cotton and Silk Weaving.

The SEACONNET MILLS, Fall River, wove in 301 days of 10 hours
each, 14,329,219 yards of 64x64 goods on the 968 of our "NEW HIGH-
SPEED LOOMS," a daily average of 51 3-10 yards per loom per day.

KILBURN LINCOLN & CO., FALL RIVER, MASS.



1898

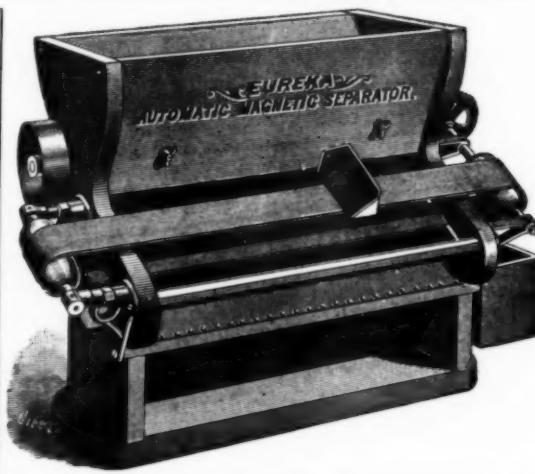
Linter

WITH
Patent Automatic
Feeder.
Adjustable
Seed Board.
Adjustable
Friction Drive
for Float.
New Method Drive.
Patent Iron Cylinder
or Wood Cylinder.

WE ALSO MAKE
Cotton Seed Hullers, Saw Filing Machines,
Gummers, Cotton Gins.

CARVER COTTON GIN CO. EAST BRIDGEWATER,
MASS., U.S.A.

**The
Improved
Eureka
Automatic
Magnetic
Separator**



is the only practical and reliable machine for the purpose of removing nails, iron
ore or other metallic particles from grain, seed, cement, phosphate and other
powdered goods. No cotton-seed oil mill should be without one of these machines.

The Iron King Packer.

This machine is specially constructed for packing cements, phosphate,
paints, and other powdered goods. For prices and further information, address

THE S. HOWES CO.
EUREKA WORKS,

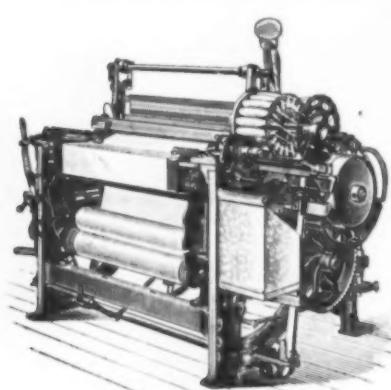
Silver Creek, N. Y.

QUEEN CITY SUPPLY CO. Puchta, Pund & Co.
PROPRIETORS.
Nos. 161, 163 and 165
West Pearl Street,
CINCINNATI, OHIO.

FACTORY, MACHINE SHOP
and MILL SUPPLIES.
Agent for B. F. Sturtevant Co., Blowers and Exhausts; Boston Belting Co., Rubber Goods of all
kinds; Jewel Belting Co., Leather Belt; Jno. A. Roeblings' Sons, Wire Rope; Grant Corundum
Wheel Co., Emery Wheels; Magnolia Metal Co., Magnolia Rabbit Metal.

CYPRESS WATER TANKS
Best in the World. Send for Catalogue
Write us for Delivered Prices. H. F. Lewis & Co. Ltd.
NEW ORLEANS La.

A. KLIPSTEIN & CO.
122 Pearl Street, - NEW YORK.
Boston, Philadelphia, Providence, Chicago,
Cincinnati, Hamilton, Canada.
Aniline Colors, Chemicals and Dyestuffs.
See special advertisement next issue.



NORTHROP LOOMS

SIX THOUSAND OF THEM

have been sold south of MASON & DIXON'S LINE.

TWENTY-FIVE HUNDRED

are on PRINT CLOTH, a grade considered too fine for Southern mills up to the present time.

THIS FACT SPEAKS FOR ITSELF.

THE DRAPER COMPANY, Hopedale, Mass.

CHARLOTTE MACHINE COMPANY,

Sole Southern Agents for
Pettee Machine Works,
 NEWTON, UPPER FALLS, MASS.
 Manufacturers of
Revolving Flat Cards,
Coller Railway Heads,
Coller Drawing Frames.

H. S. CHADWICK, President and Treasurer.
 CHARLOTTE, N. C.
ENGINEERS, CONTRACTORS
 and Dealers in
COTTON MACHINERY,
 and
COTTON MILL EQUIPMENT,

Electrical Machinery and
Electrical Supplies.

Also Agents for

A. T. ATHERTON MACHINE CO., Manufacturers of Pat. Cotton Openers, Opener Feeders and Lappers.

FALES & JENKS MACHINE CO., Manufacturers of Spinning and Twisting Machinery, with Draper No. 2 and Sherman Spindles.

THE CORLISS STEAM ENGINE CO., Corliss Engines, High-Pressure, Triple Expansion, Compound and Condensing. Boilers, Heaters and Pumps.

JONES & LAUGHLIN'S Cold Rolled Steel Shafting, Compression Couplings, Hangers, Pulleys, Etc.

DELAHUNTY DYEING MACHINE CO.'S Dyeing Machines, for Dyeing Raw Stock, Cotton or Wool, Hosiery and Knit Underwear.

DRYING MACHINERY, for Drying All Kinds of Stock, Cotton, Wool, Yarns, Hosiery, Underwear and other materials.

HYDRO EXTRACTORS, Engine Driven or Belt Driven.

DAYTON GAS ENGINE AND MFG. CO.'S Gas and Gasoline Engines.

Correspondence solicited in regard to all matters pertaining to our business.

Sole Southern Agents for
Easton & Burnham Machine Co.
 PAWTUCKET, R. I.
 Manufacturers of
Improved Upright Spoolers,
Cop, Skein or Bobbin,
Doubling Spoolers,
New Self-Oiling Spooler Spindle.

Special Southern Agents for
B. F. Sturtevant Co.
 BOSTON, MASS.
 Manufacturers of
The Sturtevant Blower System,
Heating, Ventilating and Moistening Apparatus.
Direct Current Generators and Motors.

We Sell
The Western Electric Co.'s
Arc Generators
and Electrical Supplies.
 Specifications and Estimates furnished for all kinds of Electrical Installations, including Power Transmission.

Agents for
Cohoes Iron Foundry
and Machine Co.
 COHOES, N. Y.
 Slashers, Size Kettles and Sizing Machinery.
 Elevators and Hoisting Machinery.

Sole Southern Agents for
Crompton and Knowles
Loom Works,
 Builders of
 Looms for Weaving Fabrics of every
 variety and texture.

Agents for
Curtis & Marble Machine Co.
 WORCESTER, MASS.
 Cloth Shearing, Brushing, Singeing,
 Rolling, Folding, Measuring
 and Sewing Machines.

AMERICAN SUPPLY COMPANY.

Formerly MYRON FISH & CO., of Valley Falls, R. I., and KENDRICK LOOM HARNESS CO., of Providence, R. I.

~~~~~MANUFACTURERS OF~~~~~

# Loom Harness and Reeds.

OAK BELTING, LACE AND PICKER LEATHER,

And Dealers in Supplies for Cotton, Woolen and Silk Mills.



Agents for JOSEPH NOONE'S SONS'  
 Roller, Slasher and Clearing Cloths,

Calf, Sheep  
 and Lamb  
 Roller Skins  
 and Roll Coverers' Tools.

WE HAVE UNEQUALLED FACILITIES FOR FURNISHING

Shuttles and Heddle Frames,  
 WIRE HEDDLES AND WIRE GOODS  
 Of all Descriptions.

SPECIAL NOTICE TO WORSTED AND SILK MILLS.—We manufacture both Worsted and Cotton-Machine Knit Mail Harness for Weaving Fine Worsted and Silk Goods. Also a full line of Supplies for Jacquard Looms.

Office and Salesrooms, 11-13 Eddy Street, Providence, R. I. FACTORIES:  
 PROVIDENCE and VALLEY FALLS, R. I.

PELEG W. LIPPITT, President. JOHN E. KENDRICK, Vice-Pres't. MYRON FISH, Treas. JOHN A. CARTER, Sec'y. JOSEPH H. KENDRICK, General Manager.

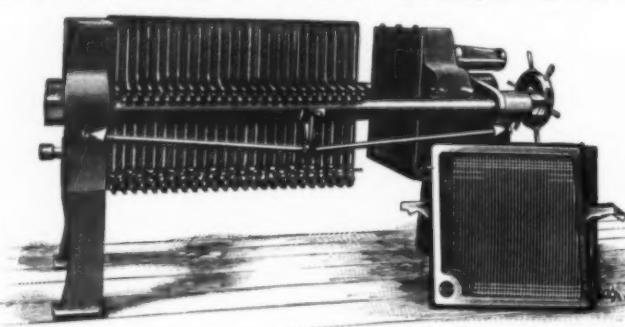
# SMITH-VAILE COTTON AND LINSEED OIL MACHINERY.

Steam Pumps.

Triplex Power Pumps.

Condensers and Vacuum Pumps.

Air Compressors.



Equipped with Modern Machinery  
To Produce Best Results.

## FILTER PRESSES....

For use in the production of Porcelain, Stoneware, Chemicals, Glycerine, Inks, Pharmaceutical Preparations, Pyrolytic, Phosphoric and Salicylic Acids, Earth and Chemical colors, White Lead, Whiting, Plaster, Glue, Gelatine, Graphite, Alumina, Anthracine, Berlin Blue, Bi-Carbonate of Soda, Cream of Tartar, Paraffine, Stearic and Vegetable Oils, Starch, Glucose, Sugar, Chocolate, Yeast.

... Write for Special Catalogues ...

THE STILWELL-BIERCE & SMITH-VAILE CO. General Offices and Factories: Dayton, Ohio.

BRANCH HOUSES:  
21 Light Street, BALTIMORE, MD.  
123 Liberty Street, NEW YORK.  
63 S. Canal Street, CHICAGO, ILL.  
341 Carondelet Street, NEW ORLEANS, LA.

# COTTONSEED OIL MACHINERY

G. H. BUSHNELL PRESS COMPANY, THOMPSONVILLE, CONN.

Hydraulic Presses and Pumps,  
Accumulators, Rolls, Heaters,  
Cake Formers, Separators, &c.

## Cottonseed Oil Machinery.

Tobacco Cutting Machinery.

### BRASS GOODS

for Engine Builders, Steam, Water and Gas Fitters. Write for Catalogue.

BUCKEYE IRON & BRASS WORKS,  
DAYTON, OHIO, U. S. A.

## CONVEYORS ELEVATORS



EWART LINK BELTING. SPROCKET WHEELS.  
LINK-BELT ENGINEERING CO.  
NICETOWN, PHILA. 49 Dey Street, NEW YORK.

Send for Illustrated Catalogue of Everything a Brickmaker Needs.

THE HENRY MARTIN BRICK MACHINE MFG. CO.  
LANCASTER, PA.

1887

1897

## Cotton Seed Oil Mills

We are making Various Sizes, from the PLANTATION MILLS of five tons to the LARGE CITY MILL of 150 tons per day. Our Mills have all the Latest Modern Improvements in Machinery, and produce the very best results.

## Hydraulic Cotton Presses

For Steam-power. Not liable to get out of order and very durable. They are the BEST BALING PRESS made for Cotton, Wool, Rags, etc.

## Threshers and Cleaners

For WHEAT, OATS and RICE. The Simplest, Cheapest and Best Made.

Information furnished upon application to

THE CARDWELL MACHINE COMPANY RICHMOND, VA.

## Chain Elevators, Conveyors.



## BRICK and CLAY-WORKING Machinery

Steam or Horse-Power.

## BRICK MACHINES.

GEORGE CARNELL, 1819-1821 Germantown Ave., cor. 5th,

PHILADELPHIA, PA.

1887

# The American Cotton Oil Company

MANUFACTURERS AND REFINERS.

## Cotton-seed Products

Oil, Cake, Meal, Linters, Ashes, Hulls.

Cable Address: AMCOTOL, New York.

THE AMERICAN COTTON OIL COMPANY, 46 Cedar St., New York.



**A** TLANTIC TRANSPORT LINE.  
NEW YORK, PHILADELPHIA and  
BALTIMORE to LONDON direct.

| Tons.               | Tons.           |
|---------------------|-----------------|
| Massachusetts, 7600 | Minnesota, 5000 |
| Manitoba, 7600      | Maryland, 4250  |
| Mobile, 7600        | Missouri, 4250  |
| Mohawk, 7600        | Montana, 4250   |
| Mississippi, 8500   | Maine, 4150     |

BALTO. STORAGE & LIGHTERAGE CO.

408-409 Water Street, Baltimore.

New York, 1 Broadway. Chicago, 234 La Salle st.  
Phila., 511 Bourse. St. Louis, 307½ Pine st.  
London, 108 Fenchurch st.

**BALTIMORE, CHESAPEAKE AND RICHMOND STEAMBOAT COMPANY.**  
U. S. Mail Steamers Atlanta and Charlotte from Pier 19 Light Street.

"CHESAPEAKE LINE,"

For the South.

Leave daily (except Sunday), at 6:30 P. M. connecting at Old Point Comfort with C. & O. Ry. and at Norfolk with Atlantic Coast Line, Southern Railway, Atlantic and Danville Ry., Norfolk and Western Ry., Norfolk and Southern R. R., and Norfolk, Virginia Beach and Southern R. R. for all points South and West.

"YORK RIVER LINE,"

For West Point and Richmond.

Leave Baltimore every Tuesday, Thursday and Saturday at 5 P. M. Through tickets to all points. TI-KET OFFICE, 205 E. Baltimore St., and Southern Ry. Office, corner Baltimore and Calvert Sts., where reservation for Staterooms can be made and baggage checked.

GENERAL OFFICES, 50 Light Street.  
REUBEN FOSTER, E. J. CHISM,  
General Manager. General Ticket Agent.

**MERCHANTS & MINERS'**

Transportation Company.

STEAMSHIP LINES.  
For BOSTON and the EAST—Every Tuesday, Thursday and Sunday at 4 P. M.

For PROVIDENCE and the EAST—Every Monday, Wednesday and Friday at 4 P. M.

For SAVANNAH and the SOUTH—Every Tuesday and Friday at 3 P. M.

For NEWPORT NEWS and NORFOLK—Daily (except Saturday) 4 P. M.

Fifit-class tickets include stateroom berth.

Accommodation and Cuisine Unequalled.

Freight Capacity Unlimited; careful handling and quick dispatch.

C. R. GILLINGHAM, Agent, Long Dock.

A. D. STEBBINS, A. T. M.

W. P. TURNER, G. P. A.

J. C. WHITNEY, T. M.

General Offices—214 E. GERMAN STREET.

**BALTIMORE STEAM PACKET CO.**

OLD AND RELIABLE

**BAY LINE.**

Elegant Steamers daily, except Sunday, from UNION DOCK (foot of Concord street) at 6:30 P. M.; Canton Wharf, 7:10 P. M., for OLD POINT COMFORT, NORFOLK, PORTSMOUTH and ALL POINTS SOUTH. Connect at Portsmouth with Seaboard Air Line solid train Portsmouth to Atlanta. Close connection at Weldon with Atlantic Coast Line. At Norfolk connect with Norfolk & Carolina, Norfolk & Southern, Atlantic & Danville, and Norfolk & Western Railroads, and with Old Dominion Line for Newberne and Washington, N. C.

Meals on European plan. Luxurious Staterooms, Electric Lights, Steam Heat. Berths free. Reserve staterooms in advance at 129 East Baltimore street.

Telephone 1435.  
JOHN R. SHERWOOD, General Manager.  
WM. RANDALL, Gen. Fgt. and Pass. Agent.  
E. BROWN, General Ticket Agent.



**Y. A. MEAD CYCLE CO.**

CHICAGO, ILL.

**THE BRADSTREET  
Mercantile Agency**

WAS ESTABLISHED IN 1849.

Is the oldest and financially the strongest organization of its kind, working in one interest and under one management, with more capital invested in the business, and expends more money every year for the collection and dissemination of its information than any similar institution in the world. Its reports are considered in the light of a guide by both investors and those contemplating the granting of credit. In addition to a large corps of skilled employees, more than one hundred thousand correspondents contribute the result of their investigation and opinions. Subscriptions are annual, and may commence at any time the subscriber elects. Details as to prices and terms will be furnished upon application.

CHARLES F. CLARKE, President,  
Baltimore Offices, Equitable Building.  
H. KERSHAW, Sept.

## TEXAS WINTER RESORTS

Are rivalling those of the Southeast.  
Send two cents postage for  
handsomely illustrated  
descriptive pamphlet.

D. J. PRICE,  
G. P. A., I. & G. N. R. R.,  
Palestine, Texas.

**WE ARE  
HIGH GRADE  
ENGRAVERS  
BY EVERY PROCESS**  
**FINE MACHINE ENGRAVING  
A SPECIALTY.**  
**PLACE NO ORDERS  
TILL YOU CORRESPOND  
WITH US.**  
**WE ILLUSTRATE CATALOGUES  
COMPLETE, OR GET OUT SINGLE  
CUTS ON SHORT NOTICE**  
**THE  
BROWN-BIERCE  
COMPANY.  
DAYTON, OHIO.**

### HELP WANTED.

Advertisements under this head will be inserted hereafter at the rate of one cent a word for each insertion.

**WANTED**—First-class practical locksmith and machinist with at least \$500 as partner; particulars to man who means business; give correct name and address. LOTZEFF, care Manufacturers' Record.

**WANTED**—Correspondent thoroughly familiar with the manufacture of "overalls," cheap shirts and trousers, the cost of making, capacity of such machinery, cost of manufacture, etc.; right man can get superintendence of prospective plant here; one familiar with knitting machinery and the manufacture of hosiery and underwear preferred. Address E. K. BRYAN, Jr., Secretary Business Men's Association, Danville, Va.

**WANTED**—A draughtsman, accustomed to engine work preferred; permanent position to the right party. Address R. D. C., care Manufacturers' Record.

**WANTED**—Agents to sell an article that eight out of ten factories, mills, stores and private families must use. Address EUREKA MFG. CO., 21½ E. Alabama St., Atlanta, Ga.

**WANTED**—Traveling salesmen on salary or commission to sell our steel pens to offices, banks and stationers. Agents need apply. Address SPOT CASH PEN CO., Boston, Mass.

**WANTED**—Capable, reliable, enterprising business man to take entire control of novel device for advertising. Small capital required to push device, not to buy it. Address ADVERTISER, care Manufacturers' Record.

### SITUATIONS WANTED.

Advertisements under this head will be inserted hereafter at the rate of one cent a word for each insertion.

**WANTED**—Situation as designer, draughtsman or superintendent in furniture or woodworking factory; I understand the work in all its details. Address FURNITURE, Manufacturers' Record.

**WANTED**—Capable man wishes to travel, season, 1868, to set up and operate farm machinery, especially mowers and Binders. Understands farming and farmers, as well as the adjustment of farm machinery. Address M. W. 34 Homestead Building, Nashville, Tenn.

**A** DESIROUS of representing here first-class manufacturing or business concern; can furnish reference, security or capital. P. H. LAR-KIN, Norfolk, Va.

**G**ENTLEMAN located in Baltimore desires to handle the product of a good knitting and hosiery mill, on commission. Address L., care Manufacturers' Record.

**C**HEMIST; experienced in the care of machinery; for the last three years in charge of a large plant. Wants a position as superintendent, manager or assistant. Address H. C. C., care Manufacturers' Record.

**WANTED**—Young man of experience desires position as stenographer with good Southern firm; good references; can use Smith or Rem-

ington machine; moderate salary to start. Address NORTH, 1125 Broad St., Nashville, Tenn. at

**WANTED**—Situation by practical lumberman both in long leaf and North Carolina pine; understands buying and inspection; also book-keeping and office work, chartering and clearing of vessels; six years among Georgia mills. Address LUMBERMAN, care Mfrs. Record.

**WANTED**—Situation as estimator or superintendent of sash and door factory, planing mill or the erection of buildings; experienced in all details of building, factory work and office

duties. Address M. M. TAYLOR, 1931 W. Jefferson street, Louisville, Ky.

**A** YOUNG MAN, aged 34 years, 14 of which have been spent in the ice business, desires a position as manager of some ice concern; understands the business in all its details, and is a hustler after trade; is now employed but wants a change; salary wanted \$1800 per annum. Address ICE, care Manufacturers' Record.

**WANTED**—A position by young man (22) as bookkeeper or stenographer; have had some experience; best of reference. Address "R," Box 185, Campbellsville, Ky.

R. S. DODSON, Proprietor.

R. A. DODSON, Manager.

## New Atlantic Hotel

Rates, \$2.50 to \$4.00.

NORFOLK, VA.



MANUFACTURERS AND DEALERS IN

WROUGHT-IRON PIPE AND FITTINGS,  
BRASS WORK AND TOOLS,  
BRASS AND IRON RAILING FITTINGS,  
"AMERICAN" SELF-PACKED UNIONS,  
"SKELETON" STOCKS AND DIES,  
STEAM GLUE HEATERS,  
STEAM RADIATORS AND COILS.

SEND FOR CATALOGUE.



**Mileage  
5585**

LOCATE YOUR FACTORY  
ON THE  
Southern - Railway.

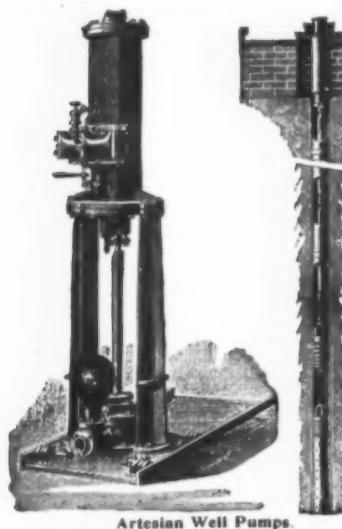
We solicit consideration of locations in the States of Virginia, North and South Carolina, Georgia, Tennessee and Kentucky.

CORRESPONDENCE CONFIDENTIAL.

**M. V. RICHARDS,**  
Land and Industrial Agent Southern Railway.

8

States.



# CAMERON STEAM PUMPS.

Pumps for  
Boiler-Feeding,  
Mines,  
Refineries,  
Breweries,  
Tanneries,  
Irrigating,  
Fire Purposes  
Railroads and  
Filling Tanks.

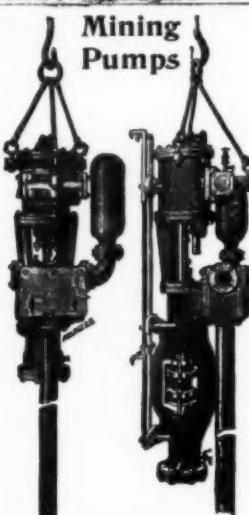
CRANK,  
FLY-WHEEL  
and VACUUM

PUMPS.

Send for  
Illustrated Catalogue A.



SIMPLE,  
COMPACT,  
DURABLE,  
EFFICIENT.  
ADAPTED TO  
ALL PURPOSES.  
NO OUTSIDE  
VALVE GEAR.



THE A. S. CAMERON STEAM PUMP WORKS,  
Foot of East 23d St., NEW YORK.

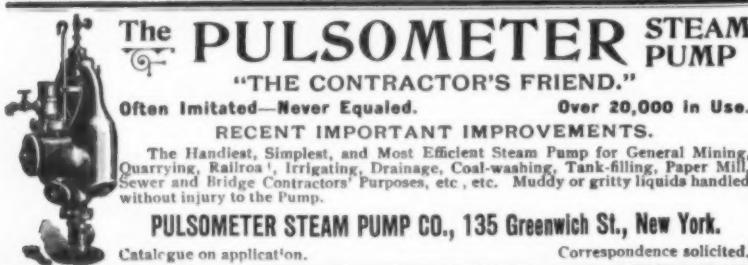
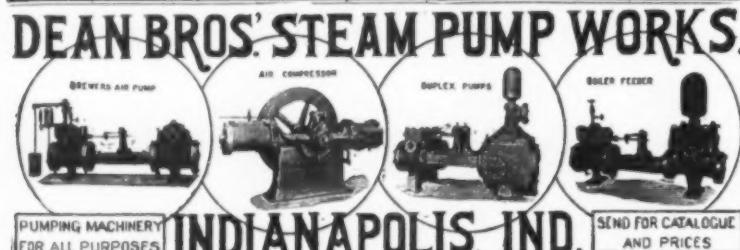
Piston Pattern. Plunger Pattern.

THE SNOW STEAM PUMP WORKS,  
BUFFALO, N. Y.

## Pumping Machinery

FOR ALL SERVICES.

New York Office—126 Liberty Street. Philadelphia Office—506 Drexel Building.  
Baltimore Office—303 North Howard Street. Boston Office—35 Congress Street.  
Henlon & Hubbell, 61 to 69 Jefferson Street, Chicago Ill.  
Charlotte Supply Co., Charlotte, N. C., Agents for North Carolina.  
Bailey-Lebby Co., Charleston, S. C., Agents for South Carolina.  
English Supply & Engine Co., Agents, Kansas City, Mo.



Often Imitated—Never Equaled.

Over 20,000 in Use.

RECENT IMPORTANT IMPROVEMENTS.

The Handiest, Simplest, and Most Efficient Steam Pump for General Mining, Quarrying, Railroads, Irrigating, Drainage, Coal-washing, Paper Mill, Sewer and Bridge Contractors' Purposes, etc., etc. Muddy or gritty liquids handled without injury to the Pump.

PULSOMETER STEAM PUMP CO., 135 Greenwich St., New York.

Catalogue on application.

Correspondence solicited.



For All Purposes.

Duplex and Single  
Steam Pumps.

Triplex Pumps,

LATEST AND MOST  
APPROVED DESIGNS.  
SINGLE and  
DOUBLE ACTING.

Single Condensers.  
Air Compressors.

THIS CUT SHOWS OUR TRIPLEX PUMP.

HEAVY PRESSURE MINING PUMPS, Steam and Electrical.

OUR NEW CATALOGUE "C" GIVES PARTICULARS.

THE STILWELL-BIERCE & SMITH-VAILE CO.

General Offices and Factory: DAYTON, OHIO.

BRANCH HOUSES:

1 Light Street, BALTIMORE, MD.  
63 S. Canal Street, CHICAGO, ILL.

123 Liberty Street, NEW YORK.  
341 Carondelet Street, NEW ORLEANS, LA.



## RAND AIR COMPRESSORS

For All Purposes and of All Sizes.

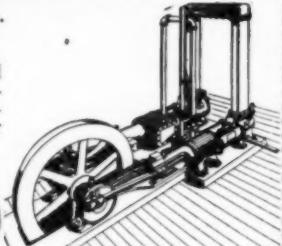
SIMPLE. DURABLE. ECONOMICAL.

Our DUPLEX COMPRESSOR, Compound Air Cylinders, with Inter-Cooler and Compound Steam Cylinders, with Meyer Cut-off Valves, is the best construction for small and medium sizes.

Don't forget our ROCK DRILLS.

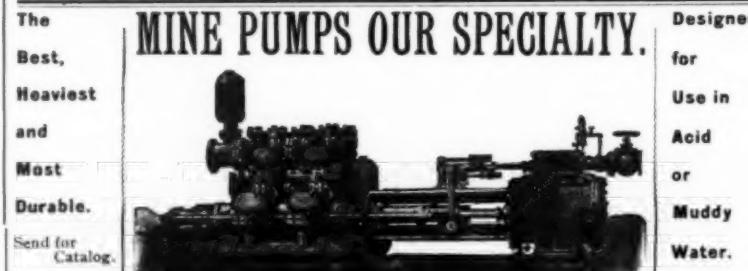
RAND DRILL CO.

100 BROADWAY, NEW YORK.



Send for Catalogue.

## MINE PUMPS OUR SPECIALTY.



Designed  
for  
Use in  
Acid  
or  
Muddy  
Water.

The  
Best,  
Heaviest  
and  
Most  
Durable.  
Send for  
Catalog.

JEANESVILLE IRON WORKS CO., - Jeanesville, Pa.

PERRY ANDREWS & BRO.

Artesian  
Well Contractor  
and Driller,

Can Furnish Full Outfits  
and all Artesian Well  
Machinery,  
19 Morrison Avenue,  
ATLANTA, GA.



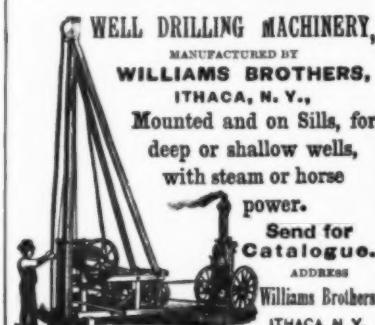
Reducing Valves.

Insist on a  
MASON  
and you will get  
a perfect apparatus.

Adapted for every  
service and guaranteed  
in every  
case.

Catalog Free.  
6 Oliver Street,  
BOSTON, MASS.

Mason Regulator Co.

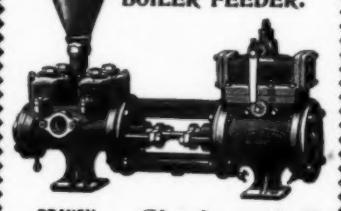


THE JOHN H. McGOWAN CO.

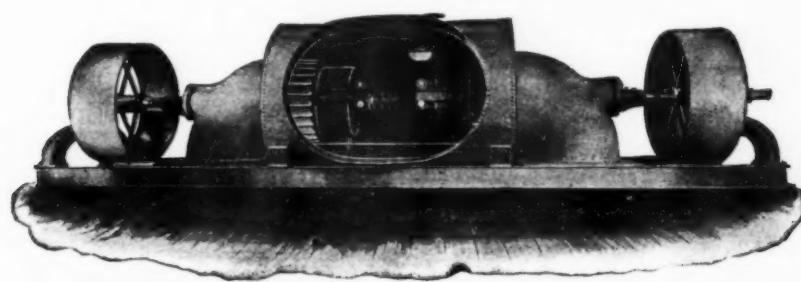
EVERY VARIETY

PUMPING MACHINERY.

"GLIDE"  
BOILER FEEDER.



BRANCH, RICHMOND, VA. Cincinnati, O.



### This Engraving Represents a Pair of 45-inch McCormick Turbines

Mounted on Horizontal Shaft, Developing 500 Horse-Power, Recently Furnished the Augusta Factory, of Augusta, Ga., for Operating Their Cotton Mill.

### Balanced Gate Turbine Wheel.

GEARING, SHAFTING, PULLEYS, FRICTION CLUTCHES, Etc.



Every Appliance for Transmitting Power.  
Plans and Estimates Furnished for Complete Power Plants.

Christiana Machine Co.  
CHRISTIANA, PA.



Send for Catalogue.



### WATER WHEEL

150 Styles and Sizes. Upright and Horizontal.  
30 YEARS' BUSINESS

affords every facility for adapting them to  
ELECTRIC, MINING AND MANUFACTURING

purposes. Easy working balanced gate, and fine regulation. We guarantee highest power, with smallest quantity of water, at full and part gates. Successfully operating under heads of 2 to 400 feet. Write us for fine pamphlet and state your wants.

THE JAMES LEFFEL & CO.  
SPRINGFIELD, OHIO, U. S. A.

### ...Mueller Corp. Cocks

are branded "H. M." Take no other. This brand is guaranteed first-class. We make Corporation Cocks to fit all styles of machines at lowest prices.



FOR SALE BY

H. MUELLER MFG. CO., Decatur, Ills.

### Atlanta Terra Cotta Co.

ARTISTIC WORK.  
PROMPT DELIVERIES.  
LOW PRICES.

Address all communications to  
V. H. Kriegshaber, Gen'l Sales Agent, Atlanta, Ga.

### POMONA TERRA COTTA CO., Pomona, N.C.

#### SEWER PIPE

Manufacturers  
SEWER, DRAIN, CULVERT and  
TERRA-COTTA FLUE PIPE  
and FIRE BRICK.

#### Anti-Friction Metals.

BRASS CASTINGS — GENUINE BABBITT'S METAL

BISMARCK TOUGH, CONTAINS NO LEAD

IRON EXCELLENT THISTLE

MEDIUM, GOOD SHAMROCK

ALSO FIVE OTHER GRADES.

EPPING STEAM PUMPS.

EPPING CARPENTER CO.

FITTSBURG, PA.

### VANDUZEN STEAM PUMP

THE BEST IN THE WORLD.

Pumps Any Kind of Liquid.

Always in Order, never Clogs nor frozen. Every Pump Guaranteed.

10 SIZES.

200 to 12000 Gallons per Hour.

Cost \$7 to \$75 each. Address

THE E. W. VANDUZEN CO.

102 to 108 E. Second St., Cincinnati, O.

### WE INVITE ATTENTION

To our Factory for the Manufacture of

### Cypress Tanks and Cisterns

Of Every Description.

We would be glad to make estimates and quote prices, and believe that we can make it manifestly to your advantage to trade with us. LET US KNOW YOUR WANTS.

### The CYPRESS LUMBER CO.

Apalachicola, Fla.

### TANKS

We manufacture all kinds and sizes of CYPRESS TANKS.

Write for Catalogue.

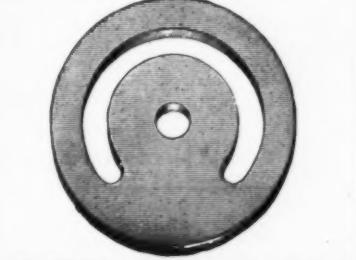
G. M. DAVIS & SON, Palatka, Fla.

Kendrick Valve & Washer Co., Syracuse, N. Y.

Manufacturers of all kinds of Pump Valves and Plungers.

Special Valves, Plungers and Cups to order.

Elevator and Hydraulic Cups.



If you wish to keep posted on the progress of the South, read the Manufacturers Record. Price \$4.00 a year.

### S. MORGAN SMITH CO.

HYDRAULIC ENGINEERS,  
YORK, PA.

MANUFACTURERS OF

### McCormick Turbines

Power Transmitting Machinery  
and Flume Work.

Estimates furnished for Complete Power Plants and Results Guaranteed

Some of our Recent Southern Customers. H. P.  
The Clifton Manufacturing Co., Clifton, S. C. .... 3560  
The John P. King Mfg. Co., Augusta, Ga. .... 2700  
Anderson Wat., Light & Pow. Co., Anderson, S. C. .... 2300  
The Mayo Mills Co., Mayodan, N. C. .... 800  
The Roanoke Mills Co., Roanoke Rapids, N. C. .... 780  
The Aiken Manufacturing Co., Bath, S. C. .... 700  
The Steele Mills Co., Rockingham, N. C. .... 500  
Reedy River Mfg. Co., Reedy River, S. C. .... 500  
Augusta Factory, Augusta, Ga. .... 500  
Ida Yarn Mills, Laurel Hill, N. C. .... 430  
The Roberdel Mfg. Co., Rockingham, N. C. .... 400

### BURNHAM TURBINES...

Upright and Horizontal

Guaranteed to give the most power for least amount of water used of any wheel on the market.

#### SPECIAL ANNOUNCEMENT.

NORRISH FOUNDRY & MCH. CO.,

BURNHAM BROS.,  
Glen Rock, Pa.

The above firms having consolidated, the firm name hereafter will be

### NORRISH, BURNHAM & CO., Inc.

SPECIALTIES — Burnham New Improved Standard Turbine, Norrish Roller Mills, Corn and Feed Mills, Regrinding and Corrugating Rolls, Power Transmitting Machinery.

Main Office and Works, Norrish, Burnham & Co., Inc., Glen Rock, Pa.

### Water Wheels and Motors.

Impulse Wheels or Turbines to Suit Requirements of every case; Large Mills, Transmission, Railway and Lighting Plants or Power in Small Units for Domestic or other purposes.

Catalogue, Drawings and Quotations sent on application.

### American Impulse Wheel Company of New York,

120 Liberty Street, New York.

### The Chapman Valve Mfg. Co.

#### FOR EVERY PURPOSE

For which a VALVE, WATER GATE or HYDRANT may be desired whether for WATER or STEAM, GAS, OIL or ACID, HIGH OR LOW PRESSURES.

#### THE CHAPMAN

will be found to meet any requirement. They are made in a large variety of styles in the best possible manner and combine all the qualities which make them

The Leading Valves and Hydrants in the Market.

Send for Illustrated Descriptive Catalogue and Prices.

All genuine Chapman Valves bear our name, trade-mark, monogram.

General Office and Works: INDIAN ORCHARD (Springfield), MASS.

Treasurer's Office: 78 KILBY ST., BOSTON. Chicago Office: 14 N. CANAL ST. New York Office: 28 PLATT ST.

### THE LUDLOW VALVE MFG CO.

TROY, N. Y., U. S. A.

MANUFACTURERS OF

Valves and Fire Hydrants,  
DOUBLE AND SINGLE GATE VALVES,

1/2-inch to 60-inch,

FOR LIGHT AND HEAVY PRESSURE,

ALSO

Vertical and Horizontal Check Valves,  
Foot Valves, Air Valves, and Yard  
and Wash Hydrants.

SEND FOR  
CATALOGUE.



J. R. ALSING CO. (Inc.)

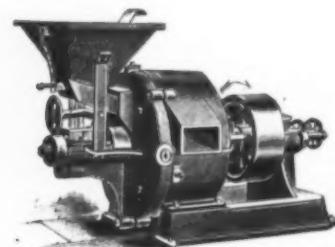
60 New Street,

Founded 1869.  
Correspondence Solicited.

NEW YORK CITY.

The Latest and  
The Best

PULVERIZER.

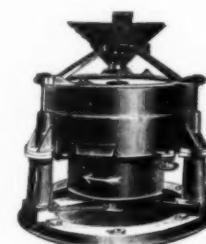
A Small Mill of Large Capacity.  
Used by all Sugar Refiners.  
Will Pulverize any material. No Bolting.

ROCK

CRUSHERS,

FRENCH BUHR &amp; ESOPUS STONES

EMERY

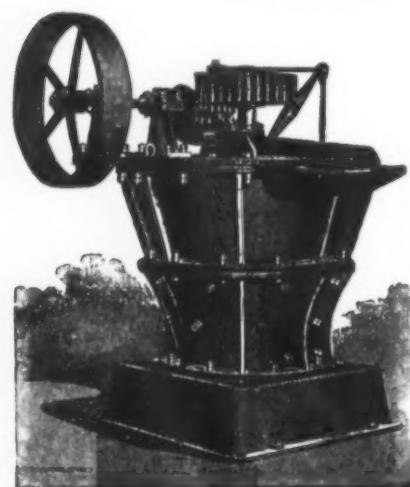
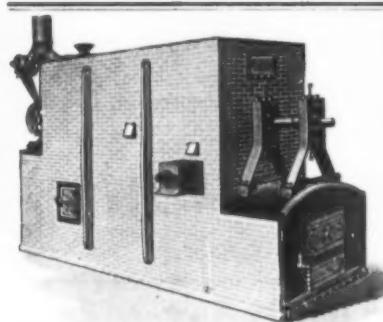
MILLS  
AND  
MILLSTONES.Send for Circular.  
STURTEVANT MILL CO.,  
BOSTON, MASS.The SCIENTIFIC BONE  
.... and SKULL

CRUSHER

A Strong and Powerful Machine.

3 to 5 Tons per Hour.  
Any Size or Condition.ARMOUR & CO.,  
CUDAHAY & CO.,  
PEET BROS.,  
and other large concerns  
use these machines.A Full Line of Mills for  
Crushing, Grinding or  
Pulverizing Fertil-  
izers and other  
Materials.Write us about any special work you may  
want to do.

Write for Catalogue.

THE FOOS MFG. CO.  
SPRINGFIELD, OHIO.... Wing Dryer  
and CalcinerPossesses Special Regulating Devices.  
Economically Handles Raw and Waste Products.

SEND FOR CATALOGUE.

Manufactured  
by R. DUNBAR & SON,  
Chemical Engineers,BUFFALO, N. Y.  
Office and Works—Perry and Mississippi Sts.

THE BAILEY-LEBBY CO. Fertilizer and Phosphate Machinery

A SPECIALTY.

Complete Steam  
and Automatic  
Sprinkler Plants  
For Cotton Mills.

Railroad and Mill Supplies, Engines, Boilers, Saw, Corn and Cane Mills. Rubber and Leather Belting, Hose, Packings, Pipe, Fittings and Brass Goods, Wood Pulleys, Shafting and Hangers. A full stock of Plumbing Goods always on hand. Largest stock of Supplies South. Lowest prices. Prompt shipments. Plans, specifications and large illustrated catalogue furnished upon application. Try the B.-L. Co. Anti-Friction Babbitt Metal, the BEST for HIGH-SPEED machinery.

CHARLESTON, S. C.

PHOSPHATE MACHINERY &amp; SUPPLIES.

Engines, Boilers, Saw Mills.

Shafting, Hangers, Wood Split Pulleys, Steam Pumps, Centrifugal Pumps, Steel Rails, Spikes and Fastenings, a Full Line of Railroad Supplies, and a Full Line of Bar Iron, Iron Pipe, Valves, Fittings, Rubber and Leather Belts.

Agents for CUMMER'S DRYER.

Write for our large Illustrated Catalogue. The Cameron &amp; Barkley Co., Charleston, S. C.

H. C. LARRABEE.

JNO. C. MURPHY

CAROLINE IRON WORKS,

Corner Caroline and Lancaster Streets,

BALTIMORE, MD.

PLASTER  
BREAKERSWrite  
for  
Prices

SMELTING POTS

For Shot and  
Sheet Lead Works.When in  
need of LEAD PIPE OR SHEET LEAD

For Sulphuric Acid Chambers

Send your orders to The JAMES ROBERTSON MANUFACTURING CO., Baltimore, Md.

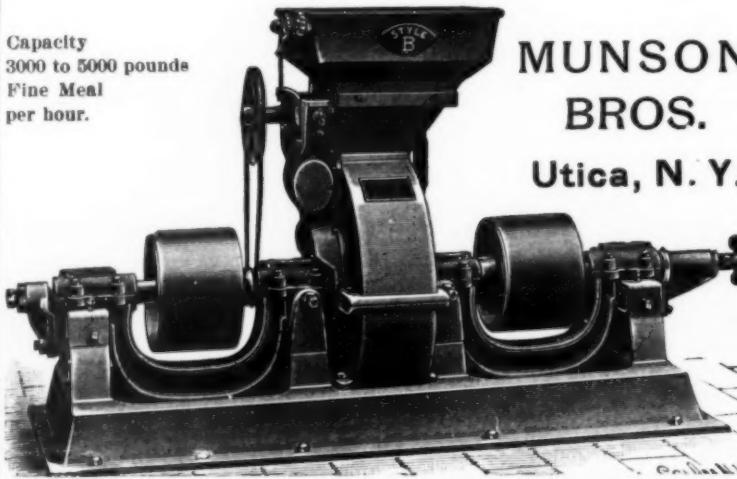
The Robinson Patent Grinding Mill

MESSRS. MUNSON BROS., Utica, N. Y.:

Gentlemen—I will keep the Robinson Mill, as it is good enough for me. The little water-wheel turns it to beat the band. It runs easier than it did with the Stone Mill. It is a dandy, and you will never see it again unless you come to Pennellville. It makes the farmers grin when they see what it will do; they are coming five miles, already, to get their oats ground. Wishing you much success, I am,

Yours, etc.,

E. N. CORBY.

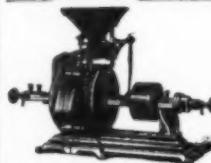
Capacity  
3000 to 5000 pounds  
Fine Meal  
per hour.MUNSON  
BROS.

Utica, N. Y.

Burr Stones  
For all purposes  
Manufactured by us.Also ROLLER MILLS, SMUT MACHINES and  
GENERAL MILL MACHINERY.

Established 1847.

B. F. STARR &amp; CO., Baltimore, Md.



Our French Burr Mills

Are used by the leading mills because they are the Best. Investigation will convince you of their superiority. Catalog and Discounts on application.

SPROUT, WALDRON &amp; CO., MUNCY, PA.

Flour Mill Builders &amp; Contractors.



TRADE MARK

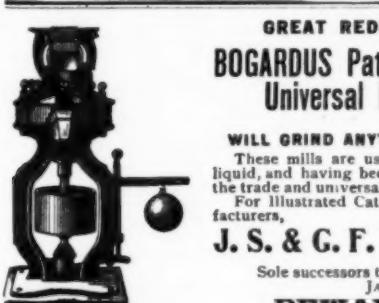
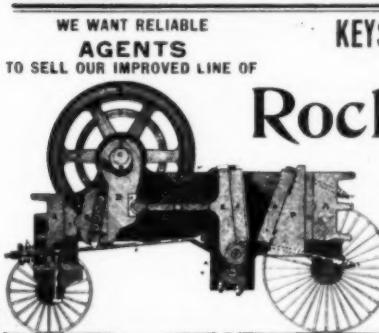
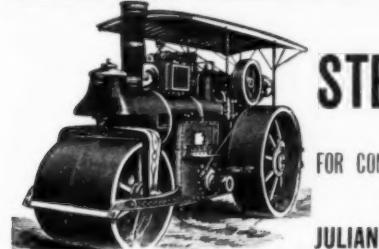
All TAGS and LABELS on GENUINE COVERT SNAPS,  
WEB GOODS, ROPE GOODS and CHAIN GOODS bear  
the above TRADE-MARK. These goods are sold by all  
LEADING JOBBERS at manufacturers' prices.

Covert Mfg. Co. West Troy, N. Y.

Alford's  
120 E. Baltimore St.  
Baltimore, Md.Athletic, Gymnasium  
and Sporting Goods,  
Guns and Ammunition

**STERLING EMERY WHEEL  
MFG. CO.**  
TIFFIN, OHIO.

Correspondence solicited.



**Davids' Patent  
Disintegrating Mill.**

JAMES MURRAY & SON, 102 TO 108 YORK ST., BALTIMORE, MD.



A. J. BECKLEY & CO., Garwood, N. J.



WE HAVE SOLD WITHIN 90 DAYS

# SIXTY GRIFFIN MILLS

to the largest Cement Manufacturers,  
among them being the

American Cement Co.  
Alpha Portland Cement Co.  
Lehigh Portland Cement Co.  
Bonneville Cement Co.

Vulcanite Portland Cement Co.  
Peerless Portland Cement Co.  
Glens Falls Portland Cement Co.  
Castalia Portland Cement Co.

because they believed that The Griffin Mill beyond doubt does the best possible work at the smallest possible expense.

We will gladly send you full information, and very many American and Foreign references regarding it if you desire them.

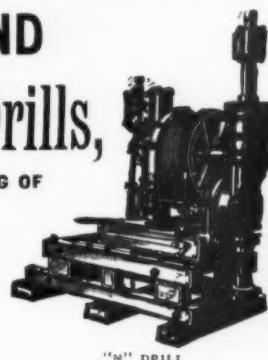
**BRADLEY PULVERIZER CO.,**  
92 STATE STREET, BOSTON, MASS., U. S. A.

## SULLIVAN DIAMOND Prospecting Core Drills,

FOR THE RAPID AND ACCURATE TESTING OF  
MINERAL DEPOSITS.

All Sizes of Drills in Stock

OPERATED BY  
HAND, HORSE-POWER, STEAM,  
COMPRESSED AIR OR  
ELECTRICITY.



"N" DRILL.

**Sullivan Rock Drills,**  
FOR  
Mining, Quarrying, Tunneling.  
CHANNELERS,  
GADDERS,  
QUARRY BARS.  
Contractors for Prospecting with  
DIAMOND CORE DRILLS.

**SULLIVAN MACHINERY CO.,**

54 to 60 N. Clinton Street, CHICAGO, ILL.

Eastern Office and Works, Claremont, N. H. Pittsburgh Office, Schmidt Bldg., 339 Fifth Ave.

## Muirhead Machine Works,

Drilling and Fishing Tools.  
Oil, Gas and Artesian Well Supplies,  
Muirhead's Patent Drive Pipe.  
Sullivan Diamond Core Drills for Sale.  
Diamond Setting a Specialty.  
Boilers, Pumps and Engines.

Correspondence solicited.

**PITTSTON, PA.**

Mention this paper



COMPLETE LIGHTING,  
POWER and  
RAILWAY PLANTS.

BELTED AND DIRECT CONNECTED GENERATORS AND MOTORS.

LATEST DESIGNS. HIGHEST EFFICIENCY.

**TRIUMPH ELECTRIC COMPANY,**  
CINCINNATI, OHIO.

**A FEASIBLE FACT  
THE CARD ELECTRIC CO.**

MANSFIELD, OHIO.

15 Cortlandt Street, New York.  
48 Wade Building, Cleveland.  
1324 Marquette Building, Chicago.

810 Neave Building, Cincinnati.  
1521 Stout Street, Denver, Colo.  
109 N. 9th Street, Lincoln, Neb.

SALES AGENCIES:

1009 Texas Avenue, Houston, Texas.  
169 Elm Street, Dallas, Texas.  
341 Baronne Street, New Orleans, La.

40 Drayton Street, Savannah, Ga.  
43 Monroe Street, Memphis, Tenn.  
Ladshaw & Ladshaw, Spartanburg, S. C.

WRITE FOR CATALOGUE AND PRICES.

That **CARD DYNAMOS** and **MOTORS** are Equal in Efficiency and Design to anything on the market.

Special Motors and Automatic Controllers for ELEVATOR and PUMP Equipments.

What is  
a  
Rotary  
Transformer  
?

A Rotary Transformer combines the elements of a Westinghouse Alternating Current Motor and a Westinghouse Direct Current Generator. ♦ ♦ 35 Westinghouse Rotaries in operation, 8,698 H P ♦ ♦ ♦ ♦ ♦ ♦ ♦

New York, Boston, Chicago, Philadelphia, St. Louis, San Francisco, Buffalo, Syracuse, Atlanta, Tacoma, Mountain Electric Co. Denver. For Canada, Ahearn & Soper, Ottawa. Westinghouse Electric Co. Ltd, 32 Victoria St., London.

THE NAME OF  
**WESTINGHOUSE**  
IS A GUARANTEE.

Westinghouse  
Electric & Mfg. Co.  
Pittsburgh, Pa.  
Westinghouse  
Electric.

**Stanley Electric Manufacturing Co.**

PITTSFIELD, MASS.

**HIGH-GRADE ELECTRICAL APPARATUS**

FOR  
Long Distance Transmission and Central Station Distribution.

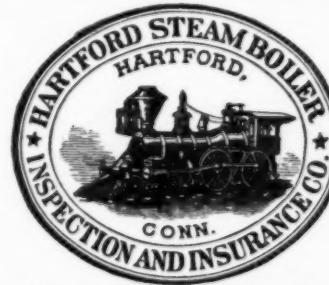
GENERATORS, MOTORS, TRANSFORMERS and SWITCHBOARDS.

BRANCH OFFICES:

ANDERSON, S. C. NEW YORK, 39 Cortlandt St. BOSTON, Equitable Bldg.  
CHICAGO, Marquette Building. SAN FRANCISCO, 106 Market St.  
ST. LOUIS, Western Electrical Supply Co.

Incorporated  
1866.

Charter  
Perpetual.



Issues Policies of Insurance after a Careful Inspection of the Boilers, Covering all Loss or Damage to Boilers, Buildings and Machinery, and Damage Resulting from Loss of Life and Personal Injuries Caused by Steam Boiler Explosions.

Full information concerning the plan of the Company's operations can be obtained at the COMPANY'S OFFICE, HARTFORD, CONN., or at any Agency.

J. M. ALLEN, President. W. B. FRANKLIN, Vice-Prest. J. B. PIERCE, Secretary.  
FRANCIS B. ALLEN, ad Vice-Prest. E. J. MURPHY, M. E., Consulting Engineer.

GENERAL AGENTS IN THE SOUTH.

LAWFORD & MCKIM, BALTIMORE, MD., . . . . .  
C. C. GARDINER, ST. LOUIS, Mo., . . . . .  
LOUIS V. CLARK & CO., BIRMINGHAM, ALA., . . . . .  
W. S. HASTIE & SON, CHARLESTON, S. C., . . . . .  
PETER F. PESCU, NEW ORLEANS, LA., . . . . .

OFFICES.

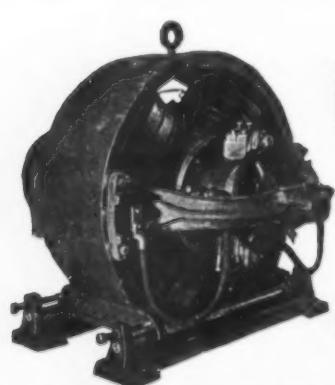
Chamber Commerce, 319 N. Fourth Street.  
2021 First Avenue.  
44 Broad Street.  
188 Gravier Street.



**WESTERN ELECTRICAL SUPPLY CO.**  
10 & 12 N. Ninth Street, ST. LOUIS, MO.  
ELECTRICAL MACHINERY AND SUPPLIES.  
Complete Electric Light and Power Installation.  
Write for Catalogue.

**Nickel Plating Outfits.**  
POLISHING MACHINERY.  
CHEMICALS.  
DYNAMOS.

THE HANSON & VAN WINKLE CO.  
CHICAGO. NEWARK, N. J.  
ADDRESS DEPARTMENT W.

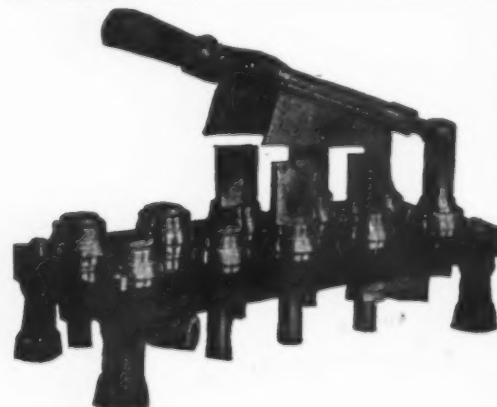


Commercial Electric Co.,  
111 Capitol Ave., Indianapolis, Ind.

Switches  
Switch Boards  
Panel Boards  
Electrical  
Specialties.

Write for Our Catalogue.

Crouse-Hinds Electric Co.  
600 E. Water St.,  
SYRACUSE, N. Y.











WE CLAIM THE FOLLOWING MERITS FOR JENKINS BROS.' VALVES:  
 1. Manufactured of the best Steam Metal.  
 2. No regrinding, therefore not constantly wearing out the Seat of the Valves.  
 3. Contain JENKINS DISC, which is suitable for all Pressures of Steam, Oils and Acids.  
 4. The Easiest Repaired, and all parts Interchangeable.  
 5. Every Valve Tested before leaving the factory.  
 6. All GENUINE stamped with Trade Mark.

JENKINS BROTHERS, New York, Philadelphia, Chicago, Boston.

## GREASE CUPS



We are headquarters and make them in endless variety. Whenever you find one giving entire satisfaction you are sure to find "Lunkenheimer" stamped thereon. All goods stamped thus are of superior quality. You cannot make a mistake in specifying Lunkenheimer's if you want the best. Your dealer carries them in stock.

Catalogue free for the Asking.

THE LUNKENHEIMER CO., General Offices and Factories: Cincinnati, Ohio, U. S. A.  
 26 Cortlandt Street, NEW YORK. 35 Great Dover Street, LONDON, S. E.

**HAINES, JONES & CADBURY CO.**  
 PHILADELPHIA, PA.  
 MANUFACTURERS  
 HIGH CLASS PLUMBING GOODS.

## ROOFING SLATE

Best Grades. Manufacturers' Prices. Prompt Shipments.  
 SLATINGTON-BANGOR SLATE SYNDICATE, MINDED, WHOLESALE DEALERS & EXPORTERS.  
 JAS. L. FOOTE, Gen'l Manager. SLATINGTON, PA.

H. STEVENS' SONS CO., Macon, Ga.

Manufacturers of

**Sewer and R. R. Culvert Pipe,**  
 Fire Brick, Milled Clay Pipe and Chimney Tops,  
 Urns, &c. Correspondence solicited.  
 Awarded Gold Metal Cotton States and International Exposition, 1895.

CHATTANOOGA FOUNDRY & PIPE WORKS,  
 DAVID GILES, Pres't. C. B. IRVING, Vice-Pres't. M. LLEWELLYN, Secy. and Treas.  
 Successors to D. GILES & CO., Chattanooga, Tenn., Manufacturers of



Also  
 Castings and Patterns

Of every description  
 made to order

## Black Diamond File Works.

Established 1863.

Twelve  
 Medals  
 Awarded at  
 International  
 Expositions.



Special  
 Prize  
 Gold  
 Medal

Atlanta 1895

Our goods are on sale in every leading Hardware Store  
 in the United States and Canada.

**G. & H. BARNETT CO.,** Philadelphia, Pa.

## Constant Improvement

Is our watchword. Our goods have many times proved to be the best, but wherever a feature can be added which will cause them to give greater satisfaction, we add it. If you want a line of Wheelbarrows, Scrapers, Plows, or Trucks that will SELL, get ours.

THE KILBOURNE & JACOBS MFG. CO.

Columbus, Ohio, U. S. A.



Mfd. by J. C. STEELE & SONS, Statesville, N. C.  
 Send for catalog and price list.



SEE THESE  
 THEY ARE ALL RIGHT  
 SO ARE THE ANGLES OF THE  
**PARALLEL CLAMP**  
 10-12-N CANAL ST.  
**C. H. BESLY & CO**  
 CHICAGO ILL. USA  
 SEND FOR 300 PAGE ILLUS. CATALOGUE

## TANITE

Emery  
 Emery Wheels  
 Emery Whetstones

Grinding Machines  
 Knife Sharpeners  
 Knife Grinders

THE TANITE CO.,  
 STROUDSBURG, PA.  
 161 WASHINGTON ST., NEW YORK.

LOOK FOR THE TRADE-MARK.  
 THE GENUINE



Automatic Injector

will hereafter have the trade  
 mark cast into the body, as  
 shown in cut.

None other is genuine. Beware of imitation.

PENBERTHY INJECTOR CO.  
 125 Seventh St., DETROIT, MICH.  
 Largest Injector manufacturers in the world.

## SELF-DUMPING COAL and ORE TUBS,

FOR  
 Contractors and Stevedores,  
 R. D. SEIDEL, Mfr.  
 Successor to Thos. L. Addison,  
 READING, PA.

## CLAYTON AIR COMPRESSORS

FOR ALL PURPOSES  
 AND PRESSURES.  
 CLAYTON AIR COMPRESSOR WORKS,  
 26 Cortlandt St., New York.



For Stationary, Portable,  
 Traction Engines, Tugboats, &c.  
 Thoroughly Reliable—Perfectly Automatic.  
 JENKINS BROS., Selling Agents,  
 NEW YORK, BOSTON, PHILA., CHICAGO.



Contractor for Prospecting  
 WITH AND SALE OF  
**DIAMOND DRILLS.**

H. P. SIMPSON.

Scranton, Pa.

E. A. WALKER, President. M. B. FITIAN, Secretary.

S. H. SINCLAIR CO.

Manufacturers of

LAUNDRY MACHINERY.



"THE SINCLAIR"  
 IRONER  
 is the First and the Best.  
 8-10 S. Canal St., CHICAGO.  
 Write for prices and catalogues.

Do You Want to BUY  
 "The Columbia" Modern Laundry Machinery  
 Is the Cheapest and Best.  
 Latest "Up To Date" Prices "Right"  
 WILSON LAUNDRY MACHINERY CO.  
 Send for Catalog R.

Laundry  
 Machinery  
 COLUMBIA, PA.

## DIXON'S SILICA GRAPHITE PAINT

FOR TIN OR SHINGLE ROOFS AND IRON WORK. Tin roofs well painted have not required repainting for 10 to 15 years.

If you need any paint it will pay you to send for circular.

JOSEPH DIXON CRUCIBLE CO., Jersey City, N. J.

